

SONY[®]

4-235-983-13(2)

Mini Hi-Fi Component System

Operating Instructions

Owner's Record

The model and serial numbers are located on the rear panel. Record the serial number in the space provided below. Refer to them whenever you call upon your Sony dealer regarding this product.

Model No. _____ Serial No. _____



***MHC-S90D
MHC-S9D***

© 2001 Sony Corporation

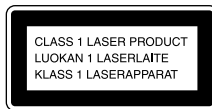
MHC-S90D 4-235-983-13(2) GB

WARNING

To prevent fire or shock hazard, do not expose the unit to rain or moisture.

To avoid electrical shock, do not open the cabinet. Refer servicing to qualified personnel only.

Do not install the appliance in a confined space, such as a bookcase or built-in cabinet.



This appliance is classified as a CLASS 1 LASER product. The CLASS 1 LASER PRODUCT MARKING is located on the rear exterior.

CAUTION

The use of optical instruments with this product will increase eye hazard.

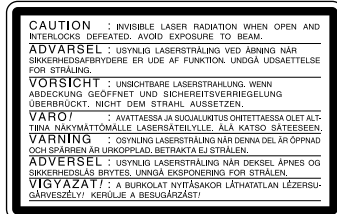
As the laser beam used in this CD/DVD Player is harmful to eyes, do not attempt to disassemble the cabinet. Refer servicing to qualified personnel only.

The following caution label is located inside the apparatus.

North American model



European model



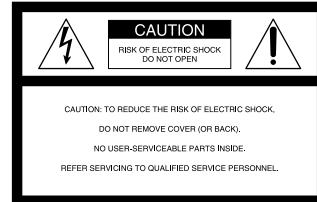
To prevent fire, do not cover the ventilation of the apparatus with newspapers, table-cloths, curtains, etc. And don't place lighted candles on the apparatus.

To prevent fire or shock hazard, do not place objects filled with liquids, such as vases, on the apparatus.



Don't throw a battery, dispose it as the injurious wastes.

NOTICE FOR THE CUSTOMERS IN THE U.S.A.



This symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

WARNING

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

CAUTION

You are cautioned that any changes or modifications not expressly approved in this manual could void your authority to operate this equipment.

NOTICE FOR THE CUSTOMERS IN CANADA

CAUTION:

TO PREVENT ELECTRIC SHOCK, DO NOT USE THIS POLARIZED AC PLUG WITH AN EXTENSION CORD, RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

Note to CATV system installer

This reminder is provided to call the CATV system installer's attention to Article 820-40 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

NOTICE FOR THE CUSTOMERS IN NORTH AMERICA



ENERGY STAR® is a U.S. registered mark. As an ENERGY STAR® partner, Sony Corporation has determined that this product meets the ENERGY STAR® guidelines for energy efficiency.

This system incorporates Dolby* Digital, Pro Logic Surround, DTS**, and the DTS Digital Surround System.

- * Manufactured under license from Dolby Laboratories. "Dolby", "Pro Logic" and the double-D symbol are trademarks of Dolby Laboratories. Confidential unpublished works. © 1992-1997 Dolby Laboratories. All rights reserved.
- ** Manufactured under license from Digital Theater Systems, Inc. US Pat. No. 5,451,942, 5,956,674, 5,974,380, 5,978,762 and other world-wide patents issued and pending. "DTS" and "DTS Digital Surround" are registered trademarks of Digital Theater Systems, Inc. © 1996, 2000 Digital Theater Systems, Inc. All rights reserved.

IMPORTANT NOTICE

Caution: This system is capable of holding a still video image or on-screen display image on your television screen indefinitely. If you leave the still video image or on-screen display image displayed on your TV for an extended period of time, you risk permanent damage to your television screen. Projection televisions are especially susceptible to this.

The MHC-S90D consists of the following components:

- A/V amplifier TA-S90D
- Tuner ST-S90D
- DVD/VIDEO CD/CD player DVP-S90D
- Cassette deck TC-S90D
- Speaker system
 - Front speakers SS-S90D
 - Center speaker SS-CT280
 - Rear speakers SS-RS280

The MHC-S9D consists of the following components:

- A/V amplifier TA-S9D
- Tuner ST-S9
- DVD/VIDEO CD/CD player DVP-S9
- Cassette deck TC-S9
- Speaker system
 - Front speakers SS-S9
 - Center speaker SS-CT270
 - Rear speakers SS-RS270

About this manual

The instructions in this manual are for models MHC-S90D and MHC-S9D. In this manual, the MHC-S9D is used for illustration purposes unless stated otherwise.

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* European model only.

** Except for North American and European models.

This system can play the following discs

	DVD VIDEOS	Audio CDs	VIDEO CDs
Disc logo			
Contents	Audio + Video	Audio	Audio + Video

The "DVD VIDEO" logo is a trademark.

Discs that this system cannot play

- CD-ROMs (PHOTO CDs included)
- All CD-Rs other than music and VCD format CD-Rs
- Data part of CD-Extras
- DVD-ROMs
- DVD Audio discs
- HD layer on SACDs


Note

Some CD-Rs/CD-RWs or DVD-Rs/DVD-RWs cannot be played on this system depending upon the format or the recording quality or physical condition of the disc, or the characteristics of the recording device.

Furthermore, the disc will not play if it has not been correctly finalized. For more information, see the operating instructions for the recording device.

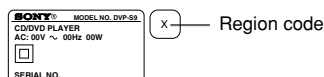
Region code of DVDs you can play on this system

Your system has a region code printed on the back of the unit and will only play DVDs labeled with identical region code.

DVDs labeled  will also be played on this system.

If you try to play any other DVD, the message "Playback prohibited by area limitations." will appear on the TV screen.

Depending on the DVD, no region code indication may be labeled even though playing the DVD is prohibited by area restrictions.



Note on playback operations of DVDs and VIDEO CDs

Some playback operations of DVDs and VIDEO CDs may be intentionally set by software producers. Since this system plays DVDs and VIDEO CDs according to the disc contents the software producers designed, some playback features may not be available. Also, refer to the instructions supplied with the DVDs or VIDEO CDs.

Note on PBC (Playback Control) (VIDEO CDs)

This system conforms to Ver. 1.1 and Ver. 2.0 of VIDEO CD standards. You can enjoy two kinds of playback depending on the disc type.

Disc type	You can
VIDEO CDs without PBC functions (Ver. 1.1 discs)	Enjoy video playback (moving pictures) as well as music.
VIDEO CDs with PBC functions (Ver. 2.0 discs)	Play interactive software using menu screens displayed on the TV screen (PBC Playback), in addition to the video playback functions of Ver. 1.1 discs. Moreover, you can play high-resolution still pictures, if they are included on the disc.

Copyrights

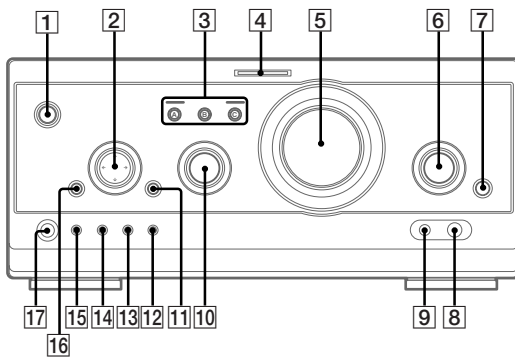
This product incorporates copyright protection technology that is protected by method claims of certain U.S. patents, other intellectual property rights owned by Macrovision Corporation, and other rights owners. Use of this copyright protection technology must be authorized by Macrovision Corporation, and is intended for home and other limited viewing uses only unless otherwise authorized by Macrovision Corporation. Reverse engineering or disassembly is prohibited.

Parts Identification

The items are arranged in alphabetical order.
Refer to the pages indicated in parentheses () for details.

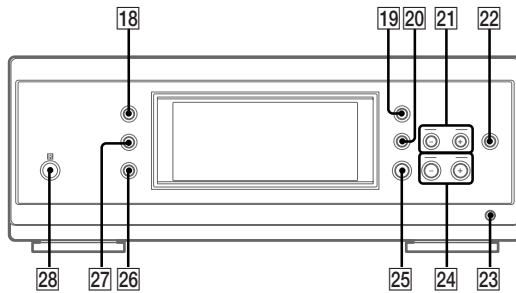
Main unit

A/V amplifier



- CINEMA STUDIO A-C **3** (49)
- DIGITAL **7** (57, 63)
- DVD MENU **14** (27)
- ENTER/↑/↓/←/→ **2**
- EQ **11** (52)
- EQ ON/OFF **12** (13, 53)
- FILE SELECT **10** (26, 48, 49, 53)
- FUNCTION **6** (12, 13, 25, 27, 28, 36, 45, 46, 55, 57, 62)
- MIC jack (Except for North American and European models) **9** (54)
- MIC LEVEL (Except for North American and European models) **8** (54)
- MULTI CHANNEL DECODING indicator **4** (50)
- PHONES jack **17**
- SET UP **13** (14, 16, 51, 53, 54)
- SUR **16** (51)
- TITLE **15** (27)
- VOLUME **5**
- I/⏻ (power) **1** (12, 13, 63)

Tuner

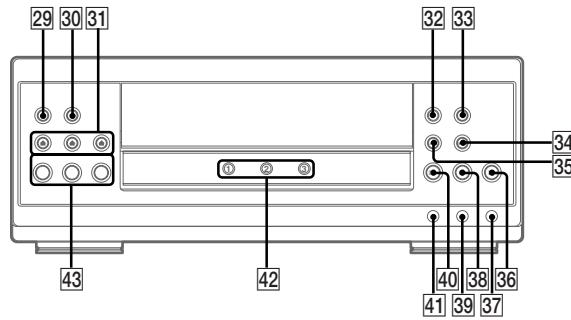


- CLOCK/TIMER **27** (17, 47, 56)
- DISPLAY **18** (17, 31, 32, 43, 54, 63)
- ENTER **22** (42, 43)
- IR receptor **28**
- PRESET -/+ **24** (42, 43)
- PTY (European model only) **23** (43)
- STEREO/MONO **19** (43, 63)
- TIMER SELECT **26** (47, 56)
- TUNER/BAND **25** (42)
- TUNER MEMORY **20** (42)
- TUNING -/+ **21** (42)

continued

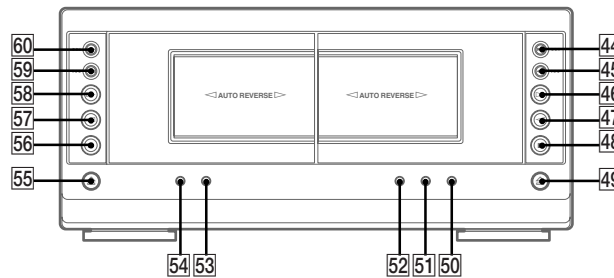
Main unit (continued)

DVD/VIDEO CD/CD player



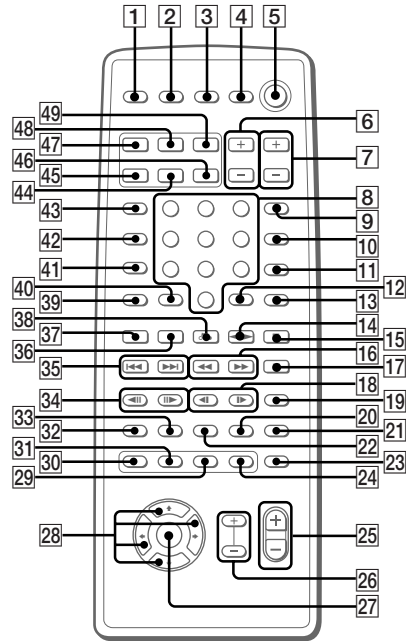
- DISC 1-3 **43** (25, 26)
- DISC 1-3 indicators **42**
- DISC 1-3 ▲ (eject) **31** (25, 26)
- NEXT **39** (26, 27)
- PLAY MODE **29** (25, 28, 29, 46)
- PREV **41** (26, 27)
- REPEAT **30** (12, 30)
- RETURN ⏮ **37** (12, 27, 39, 40)
- ▶ SELECT (play) **40** (25-27, 41, 55, 60)
- ⏸ (pause) **38** (26)
- (stop) **36** (12, 26, 27, 30, 38, 45, 55, 61)
- ◀◀ (go backward) **35** (26, 28, 30)
- ▶▶ (go forward) **34** (26, 28, 30)
- ◀◀ (rewind) **32** (26)
- ▶▶ (fast forward) **33** (26)

Cassette deck



- CD SYNC **51** (45, 46)
- DIRECTION **54** (44, 45, 46, 55)
- DOLBY NR **53** (44-46)
- HI-DUB **52** (45)
- REC PAUSE/START **50** (45, 46, 55)
- Deck A -
- ▶ (forward play) **58** (44, 55, 63)
- ◀ (reverse play) **57** (44, 63)
- (stop) **56** (44)
- ▶▶/▶▶ (go forward/fast forward) **60** (44)
- ◀◀/◀◀ (go backward/rewind) **59** (44)
- ▲ (eject) **55** (44, 63)
- Deck B -
- ▶ (forward play) **46** (44, 45, 63)
- ◀ (reverse play) **47** (44, 45, 63)
- (stop) **48** (44, 45, 55)
- ▶▶/▶▶ (fast forward/go forward) **44** (44)
- ◀◀/◀◀ (rewind/go backward) **45** (44)
- ▲ (eject) **49** (44, 63)

Remote control



ANGLE **32** (37)
 AUDIO **22** (34)
 CLEAR **12** (22, 29, 30, 36)
 CLOCK/TIMER SELECT **3**
 (47, 56)
 CLOCK/TIMER SET **2** (17, 47,
 56)
 DBFB **41** (48)
 D.SKIP **9** (26)
 DIGITAL **44** (57)
 DISPLAY **47** (17, 31, 32, 43, 54)
 DVD DISPLAY **23** (18, 19, 30,
 32-34, 36-40)
 DVD MENU **21** (27)
 DVD SET UP **19** (18, 19, 24, 39)
 ENTER **27**
 EQ **31** (52)
 EQ ON/OFF **29** (53)
 FILE SELECT +/- **26** (48, 49,
 53)
 FUNCTION **43** (18, 25, 27, 28,
 36, 45, 46, 55, 57)
 GROOVE **42** (48)
 KARAOKE PON (Except for
 North American and European
 models) **39** (54)

MD **46** (57)
 Numeric buttons **8** (28, 30)
 PLAY MODE **11** (25, 28, 29, 46)
 REPEAT **10** (30)
 RETURN **13** (27, 39, 40)
 SELECT DVD **36** (20, 25,
 27, 29, 30)
 SET UP **24** (14, 16, 51, 53, 54)
 SLEEP **1** (55)
 SLOW **18** (26)
 SPECTRUM ANALYZER **48**
 (54)
 STEP **34** (26)
 SUBTITLE **33** (37)
 SUR **30** (51)
 TAPE A **38** (44)
 TAPE B **14** (44, 45)
 TITLE **20** (27)
 TUNER/BAND **37** (42)
 TV **4** (13)
 TV CH +/- **7** (13)
 TV/VIDEO **49** (13)
 TV VOL +/- **6** (13)
 VIDEO **45** (57)
 VOL +/- **25**

BUTTON DESCRIPTIONS

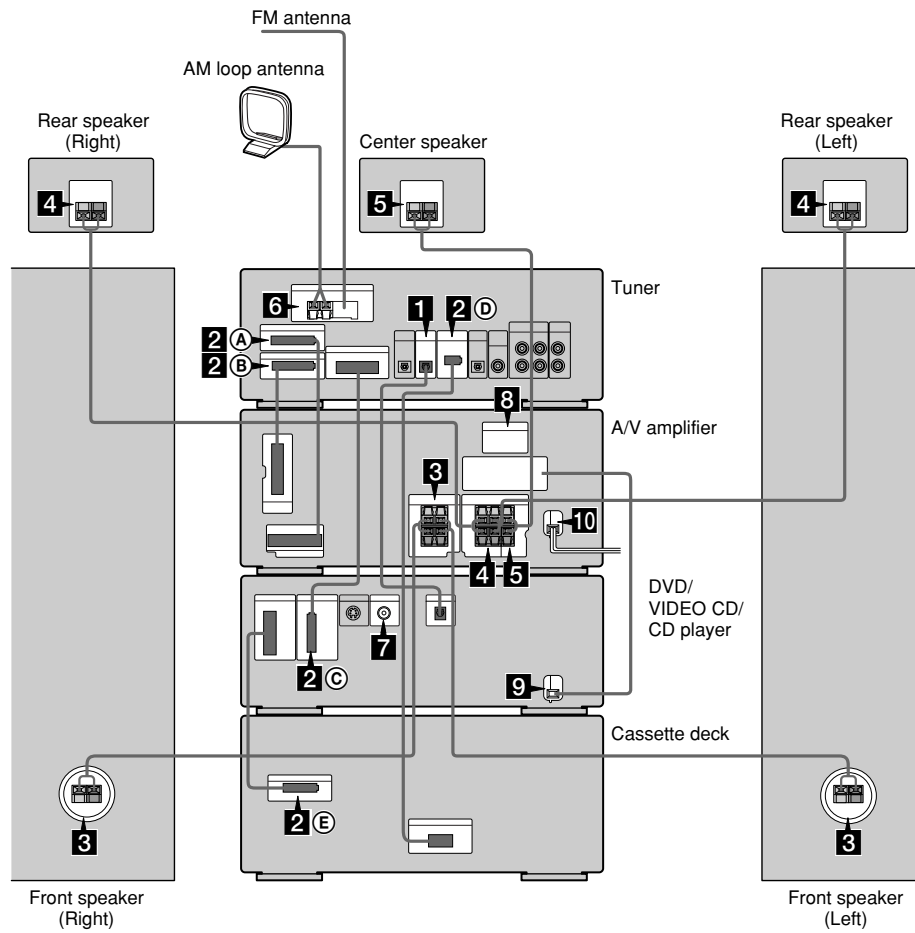
I/⏻ (power) **5**
⏸ (pause) **17**
■ (stop) **15**
◀◀/▶▶ (rewind/fast forward),
 TUNING +/- **16**
◀◀/▶▶ (go backward/
 go forward), PRESET +/-,
 PREV/NEXT **35**
↕/↔/↔ **28**
>10 **40**

Getting Started

Hooking up the system

Do the following procedure **1** to **11** to hook up your system using the supplied cords and accessories.

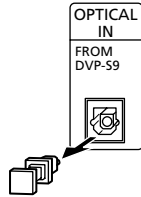
Before connecting, place the system as described below.



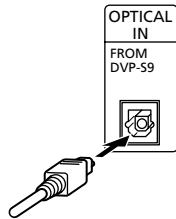
1 Connect the DVD/VIDEO CD/CD player and the tuner with the optical cable.

Connect from the OPTICAL OUT jack on the DVD/VIDEO CD/CD player to the OPTICAL IN jack on the tuner.

- ① Remove the cover of the jack.



- ② Connect the optical cable.



Be sure to connect the optical cable securely. Otherwise, you will not hear any sound from the DVD/VIDEO CD/CD player.

2 Connect the flat system control cables to the SYSTEM CONTROL connectors until it clicks.

Connect to the same colored jack in the order indicated on the rear panel.

Ⓐ SYSTEM CONTROL 1 (Red)

Connect from the tuner to the A/V amplifier.

Ⓑ SYSTEM CONTROL 2 (Blue)

Connect from the tuner to the A/V amplifier.

Ⓒ SYSTEM CONTROL 3 (Black)

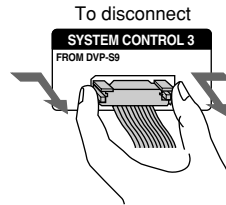
Connect from the DVD/VIDEO CD/CD player to the tuner.

Ⓓ SYSTEM CONTROL 4 (Black)

Connect from the tuner to the cassette deck.

Ⓔ SYSTEM CONTROL 5 (White)

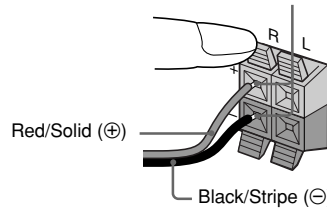
Connect from the cassette deck to the DVD/VIDEO CD/CD player.



3 Connect the front speakers.

Connect the speaker cords to the FRONT SPEAKER jacks.

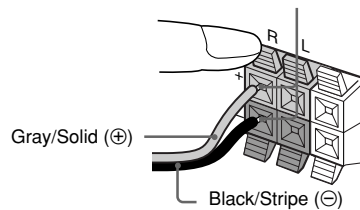
Insert only the stripped portion.



4 Connect the rear speakers.

Connect the speaker cords to the REAR SPEAKER jacks.

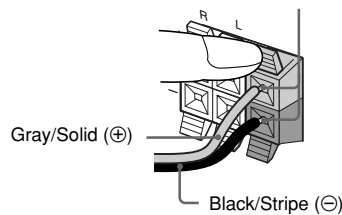
Insert only the stripped portion.



5 Connect the center speaker.

Connect the speaker cords to the CENTER SPEAKER jacks.

Insert only the stripped portion.

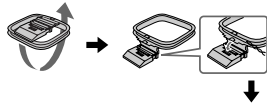


continued

Hooking up the system (continued)

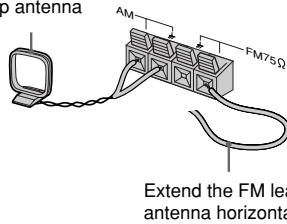
6 Connect the FM/AM antennas.

Set up the AM loop antenna, then connect it.



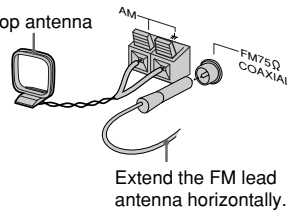
Jack type A

AM loop antenna

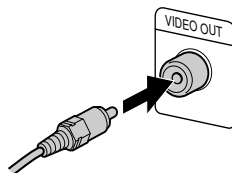


Jack type B

AM loop antenna



7 Connect the video input jack of your TV to the VIDEO OUT jack with the video cable.



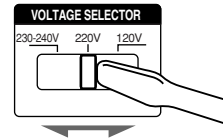
When using a TV

Turn on the TV and select the video input so you can view the pictures from this system.

Tip

For even higher quality video images, you can use an optional S-video cable to connect the S VIDEO input jack on your TV to the S VIDEO OUT jack.

8 For models with a voltage selector, set VOLTAGE SELECTOR to the position of your local power line voltage.



9 Connect the power cord of the DVD/VIDEO CD/CD player to the A/V amplifier.

10 Connect the power cord to a wall outlet.

The demonstration appears in the display. When you press I/⏻, the system turns on and the demonstration automatically ends. If the supplied adaptor on the plug does not fit your wall outlet, detach it from the plug (only for models equipped with an adaptor).

11 (Except for Pan American and European models)

Set the color system according to your TV.

The color system is factory set to NTSC for region code 3 models, and PAL for other region code models. Each time you perform the procedure below, the color system changes as follows:

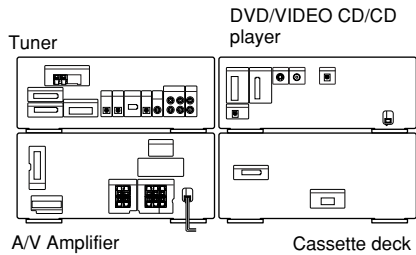
NTSC ↔ PAL

Use the buttons on the unit.

- 1 Press I/⏻ to turn on the system.
- 2 Turn FUNCTION to select "DVD".
- 3 Press ■ (DVD/VIDEO CD/CD player).
- 4 Press RETURN ↶ and REPEAT (DVD/VIDEO CD/CD player) simultaneously. The system turns off.
- 5 Press I/⏻ to turn on the system. The color system is changed.

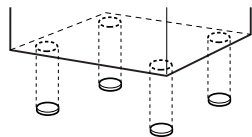
Tip

You can place the components as described below. In this case, place the components first, then connect the components.



To attach the center and rear speaker pads

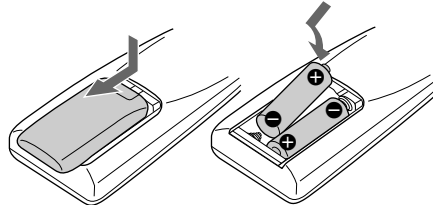
Attach the supplied center and rear speaker pads to the bottom of the speakers to stabilize the speakers and prevent them from slipping.



Notes

- Keep the speaker cords away from the antennas to prevent noise.
- Do not place the rear speakers on top of a TV. This may cause color distortion in the TV screen.
- Be sure to connect both left and right rear speakers. Otherwise, the sound will not be heard.
- When you play a VIDEO CD recorded in the different color system from the one you set to the system, the picture image may be distorted.
- The AC OUTLET on the A/V amplifier is for this system's DVD/VIDEO CD/CD player only. Do not connect other component.

Inserting two size AA (R6) batteries into the remote



Operating a Sony TV

You can use the following buttons on the remote to operate a Sony TV.

To	Press
Turn the TV on or off	TV I/⏻
Switch the TV's video input	TV/VIDEO.
Change the TV channels	TV CH +/-.
Adjusts the volume of the TV speaker(s)	TV VOL +/-.

Tip

When the remote no longer operates the system, replace both batteries with new ones.

Note

If you do not use the remote for a long period of time, remove the batteries to avoid possible damage from battery leakage.

Notice for carrying this system

Do the following to protect the DVD mechanism.

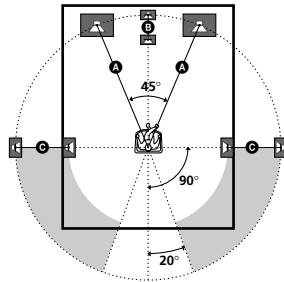
- 1 Turn on the system, then turn FUNCTION to select "DVD". Make sure that all discs are removed from the unit.
- 2 While holding down EQ ON/OFF, press I/⏻ until "LOCK" appears.
- 3 Release I/⏻ first, then release EQ ON/OFF.
- 4 Unplug the AC power cord.

Multi channel surround setup

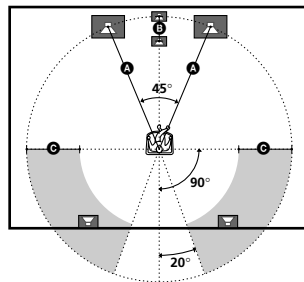
For the best possible surround sound, all speakers should be the same distance from the listening position (A). However, this unit lets you to place the center speaker up to 1.5 meters closer (B) and the rear speakers up to 4.5 meters closer (C) to the listening position. The front speakers can be placed from 1.0 to 12.0 meters from the listening position (A).

You can place the rear speakers either behind you or to the side, depending on the shape of your room (etc.).

When placing rear speakers to your side



When placing rear speakers behind you



Note

Do not place the center speaker farther away from the listening position than the front speakers.

Specifying the speaker parameters

- 1** Press SET UP.
- 2** Press \leftarrow or \rightarrow repeatedly to select "SP. SET UP".
- 3** Press ENTER (A/V amplifier or remote).
- 4** Press \leftarrow or \rightarrow repeatedly to select the parameter you want to adjust.
See the table on page 73 for the speaker parameters.
- 5** Press \uparrow or \downarrow repeatedly to select the setting you want.
The setting is stored.
- 6** Repeat steps 4 and 5 to set the speaker parameters.
- 7** Press ENTER (A/V amplifier or remote).

■ Center speaker selection (CENTER)

- If you connect a center speaker, select "YES".
- If you do not connect a center speaker, select "NO". The sound of the center channel will be output from the front speakers.

■ Rear speaker selection (REAR)

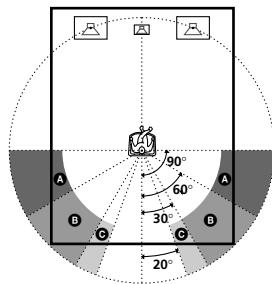
- If you connect rear speakers, select "YES".
- If you do not connect rear speakers, select "NO".

■ **Rear speaker position (R.PL.)***

This parameter lets you specify the location of your rear speakers for proper implementation of the Digital Cinema Sound surround modes in the “VIRTUAL” sound fields. Refer to the illustration below.

- Select “SIDE” if the location of your rear speakers corresponds to section **A**.
- Select “MIDDLE” if the location of your rear speakers corresponds to section **B**.
- Select “BEHIND” if the location of your rear speakers corresponds to section **C**.

This setting only effects the surround modes in the “VIRTUAL” sound fields (“VIRTUAL” indicator in the display lights up). The bass frequencies are effectively reproduced from the speakers.

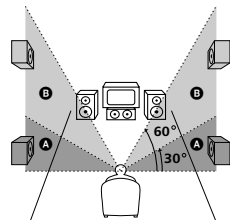


■ **Rear speaker height (R.HGT.)***

This parameter lets you specify the height of your rear speakers for proper implementation of the Digital Cinema Sound surround modes in the “VIRTUAL” sound fields. Refer to the illustration below.

- Select “LOW” if the location of your rear speakers corresponds to section **A**.
- Select “HIGH” if the location of your rear speakers corresponds to section **B**.

This setting only effects the surround modes in the “VIRTUAL” sound fields (“VIRTUAL” indicator in the display lights up).



* These parameters are not available when “Rear speaker selection (REAR)” is set to “NO”.

Tip

The rear speaker position parameter is designed specifically for implementation of the Digital Cinema Sound modes in the “VIRTUAL” sound fields. With the Digital Cinema Sound modes, speaker position is not as critical as other modes. All of the modes in the “VIRTUAL” sound fields were designed under the premise that the rear speaker would be located behind the listening position, but presentation remains fairly consistent even with the rear speakers positioned at a rather wide angle. However, if the speakers are pointing toward the listener from the immediate left and right of the listening position, the “VIRTUAL” sound fields will not be effective unless the rear speaker position parameter is set to “SIDE”.

Nevertheless, each listening environment has many variables, like wall reflections, and you may obtain better results using “BEHIND” or “MIDDLE” if your speakers are located high above the listening position, even if they are to the immediate left and right. Therefore, although it may result in a setting contrary to the “Rear speaker position” explanation, we recommend that you playback multi channel surround encoded software and listen to the effect each setting has on your listening environment. Choose the setting that provides a good sense of spaciousness and that best succeeds in forming a cohesive space between the surround sound from the rear speakers and the sound of the front speakers. If you are not sure which sounds best, select “BEHIND” and then use the speaker distance parameter and speaker level adjustments to obtain proper balance.

■ **Subwoofer selection (SUB W.)**

- If you connect a subwoofer, select “YES”.
- If you do not connect a subwoofer, select “NO”.
- In order to take full advantage of the Dolby Digital bass redirection circuitry, we recommend setting the subwoofer’s cut off frequency as high as possible.

continued

Multi channel surround setup (continued)

■ **Front speaker distance (F.DIST.)**

Set the distance from your listening position to the front (left or right) speaker (A on page 14).

■ **Center speaker distance (C.DIST.)**

Set the distance from your listening position to the center speaker (B on page 14).

■ **Rear speaker distance (R.DIST.)**

Set the distance from your listening position to the rear (left or right) speaker (C on page 14).

Tip

This unit allows you to input the speaker position in terms of distance. However, it is not possible to set the center speaker further than the front speakers. Also, the center speaker cannot be set more than 1.5 meters closer than the front speakers.

Likewise, the rear speakers can not be set farther away from the listening position than the front speakers. And they can be no more than 4.5 meters closer.

This is because incorrect speaker placement is not conducive to the enjoyment of surround sound. Please note that, setting the speaker distance closer than the actual location of the speakers will cause a delay in the output of the sound from that speaker. In other words, the speaker will sound like it is farther away.

For example, setting the center speaker distance 1–2 m closer than the actual speaker position will create a fairly realistic sensation of being “inside” the screen. If you cannot obtain a satisfactory surround effect because the rear speakers are too close, setting the rear speaker distance closer (shorter) than the actual distance will create a larger soundstage. Adjusting these parameter while listening to the sound often results in much better surround sound. Give it a try!

To reset the speaker settings

- 1** Press SET UP.
- 2** Press ← or → repeatedly to select “RESET MENU”.
- 3** Press ENTER (A/V amplifier or remote).
- 4** Press ← or → repeatedly to select “SP. SET. RESET”.
- 5** Press ENTER (A/V amplifier or remote).
All the speaker settings are reset to the factory settings.

To cancel

Press SET UP.

Adjusting the speaker volume

- 1** Press SET UP.
- 2** Press ← or → repeatedly to select “TEST TONE”.
- 3** Press ENTER (A/V amplifier or remote).
- 4** Press ↑ or ↓ repeatedly to select “ON”.
You will hear the test tone from each speaker in sequence.
- 5** Adjust the LEVEL parameters so that the volume of the test tone from each speaker sounds the same when you are in your main listening position (see page 51).
- 6** To turn off the test tone, repeat steps 1 to 3 and press ↑ or ↓ repeatedly to select “OFF”.

Notes

- The adjustments are shown in the display during adjustment.
- Although these adjustments can be made via the front panel, we recommend you follow the procedure described above and adjust the speaker levels from your listening position using SET UP button on the remote.
- If you press SET UP while adjusting parameters using OSD, the OSD turns off.

Setting the time

- 1 Turn on the system.**
- 2 Press CLOCK/TIMER (or CLOCK/TIMER SET on the remote).**
When you set the time for the first time, proceed to step 5.
- 3 Press ↑ or ↓ repeatedly to select “CLOCK SET”.**
- 4 Press ENTER (A/V amplifier or remote).**
- 5 Press ↑ or ↓ repeatedly to set the hour.**
- 6 Press ENTER (A/V amplifier or remote).**
- 7 Press ↑ or ↓ repeatedly to set the minutes.**
- 8 Press ENTER (A/V amplifier or remote).**

Tip

If you have made a mistake or want to change the time, start over from step 2.

Note

The clock settings are canceled when you disconnect the power cord or if a power failure occurs.

Saving the power in standby mode

Press DISPLAY repeatedly when the power is off.

Each time you press the button, the system switches cyclically as follows:

Demonstration → Clock display → Power Saving Mode

To cancel the Power Saving Mode

Press DISPLAY once to show the demonstration, twice to show the clock display.

Tips

- I/⏻ indicator lights up even in the Power Saving Mode.
- The timer functions during the Power Saving Mode.

Note

During the Power Saving Mode, the following functions do not work:

- Setting the time.
- Changing the AM tuning interval (European and Middle Eastern models do not have this function).
- One Touch Play function.

Setting Up for DVD/VIDEO CD/CD

Using the Setup Display

By using the Setup Display, you can make various adjustments to items such as picture and sound. You can also set a language for the subtitles and the Setup Display, among other things. For details on each Setup Display item, see pages 18–24. For an overall list of Setup Display items, see page 71.

The North American model is the model used for OSD (on-screen display) illustration purposes in this section.

Use the remote for the operation.

1 Press **FUNCTION** to select “DVD”.

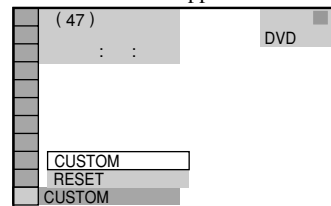
2 When the playback is stopped, press **DVD DISPLAY**.

The Control Menu appears.

If you press DVD SET UP, you can go to step 4 directly.

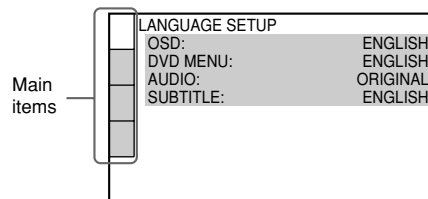
3 Press **↓** or **↑** repeatedly to select “SETUP”, then press **ENTER**.

The options for “SETUP” appear.



4 Press **↓** or **↑** repeatedly to select “CUSTOM”, then press **ENTER**.

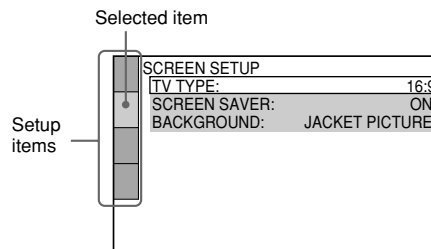
The Setup Display appears.



5 Press **↓** or **↑** repeatedly to select the setup item from the displayed list, then press **ENTER**.

The selected setup item appears.

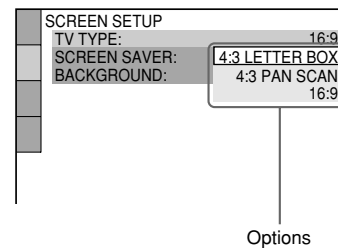
Example: “SCREEN SETUP”



6 Press **↓** or **↑** repeatedly to select an item, then press **ENTER**.

The options for the selected item appear.

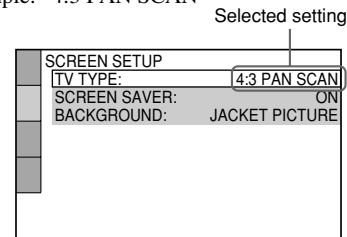
Example: “TV TYPE”



7 Press **↓** or **↑** repeatedly to select a setting, then press **ENTER**.

The setting is selected and the setup is completed.

Example: “4:3 PAN SCAN”



To turn off the Setup Display

Press DVD SET UP or DVD DISPLAY repeatedly until the Setup Display is turned off.

Tip

If you select “RESET” in step 4, you can reset all of the “SETUP” settings on pages 18–24 (except for PARENTAL CONTROL) to the default settings. After you select “RESET” and press ENTER, select “YES” to reset the settings (it takes a few seconds to complete), or select “NO” and press ENTER to return to the Control Menu. Do not press I/⏪ when resetting the system.

Setting the display or sound track language

— LANGUAGE SETUP

“LANGUAGE SETUP” allows you to set various languages for the on-screen display or sound track.

Select “LANGUAGE SETUP” in the Setup Display.

LANGUAGE SETUP	
OSD:	ENGLISH
DVD MENU:	ENGLISH
AUDIO:	ORIGINAL
SUBTITLE:	ENGLISH

■ OSD (On-Screen Display)

Switches the display language on the screen. Select the language from the displayed list.

■ DVD MENU (DVD only)

Select the language for the DVD menu.*

■ AUDIO (DVD only)

Switches the language of the sound track. Select the language from the displayed list.* When you select “ORIGINAL”, the language given priority in the disc is selected.

■ SUBTITLE (DVD only)

Switches the language of the subtitle. Select the language from the displayed list.* When you select “AUDIO FOLLOW”, the language for the subtitles changes according to the language you selected for the sound track.

* If you select “OTHERS →” in “DVD MENU”, “AUDIO”, or “SUBTITLE”, select and enter the language code from the list using the numeric buttons (page 69). After you selected, the language code (4 digits) is displayed the next time you select “OTHERS →”.

Note

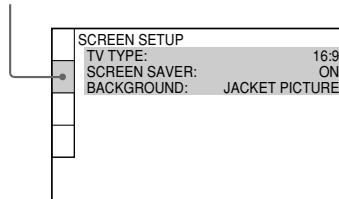
When you select a language that is not recorded on the DVD, one of the recorded languages will be automatically selected (except for “OSD”).

Settings for the display

— SCREEN SETUP

Select settings according to the connected TV.

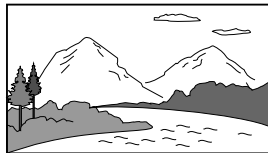
Select "SCREEN SETUP" in the Setup Display.



■ TV TYPE (DVD only)

Select the aspect ratio of the connected TV.

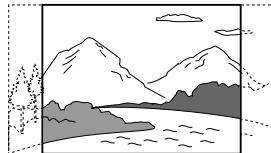
- **16:9:** Select this when you connect a wide-screen TV or a TV with a wide mode function.



- **4:3 LETTER BOX:** Select this when you connect a 4:3 screen TV. This setting displays a wide picture with bands displayed on the upper and lower portions of the screen.



- **4:3 PAN SCAN:** Select this when you connect a 4:3 screen TV. This setting displays the wide picture on the entire screen and cuts off the portions that do not fit.



Note

Depending on the DVD, "4:3 LETTER BOX" may be selected automatically instead of "4:3 PAN SCAN" or vice versa.

■ SCREEN SAVER

Turn on and off the screen saver. If you turn on the screen saver, the screen saver image appears when you leave the player in pause or stop mode for 15 minutes or when you play a CD for more than 15 minutes. The screen saver will help prevent your display device from becoming damaged (ghosting). Press SELECT DVD ► to turn off the screen saver.

- **ON:** Turns on the screen saver.
- **OFF:** Turns off the screen saver.

■ BACKGROUND

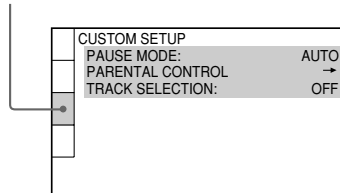
Select the background color or picture on the TV screen when the playback is stopped or while playing a CD.

- **JACKET PICTURE:** The jacket picture (still picture) appears in the background, but only when the jacket picture is already recorded on the disc (CD-EXTRA, etc). If the disc does not contain a jacket picture, the "GRAPHICS" picture appears.
- **GRAPHICS:** The preset picture stored in the system appears in the background.
- **BLUE:** The background color is blue.
- **BLACK:** The background color is black.

Custom settings

— CUSTOM SETUP

Select "CUSTOM SETUP" in the Setup Display.



■ COLOR SYSTEM (Except for Pan American and European models)

Select the color system when you play a VIDEO CD.

- **AUTO:** Outputs the video signal in the system of the disc, either PAL or NTSC. If your TV uses a DUAL system, select AUTO.
- **PAL:** Changes the video signal of an NTSC disc and outputs it in the PAL system.
- **NTSC:** Changes the video signal of a PAL disc and outputs it in the NTSC system.

Notes

- You cannot change the color system of the disc itself.
- Except for Pan American and European models, you can change the color system of this unit according to the connected TV. See page 12.

■ PAUSE MODE (DVD only)

Select the picture in pause mode.

- **AUTO:** A picture including subjects that move dynamically is output with no jitter. Normally select this position.
- **FRAME:** A picture including subjects that do not move dynamically is output in high resolution.

■ PARENTAL CONTROL → (DVD only)

Set a password and playback limitation level for DVDs with playback limitation for children. For details, see "Limiting playback by children (Parental Control)" on page 39.

■ TRACK SELECTION (DVD only)

Gives the priority to the sound track which contains the highest number of channels when you play a DVD on which multiple audio formats (PCM, DTS, MPEG audio, or Dolby Digital format) are recorded.

- **OFF:** No priority given.
- **AUTO:** Priority given.

Notes

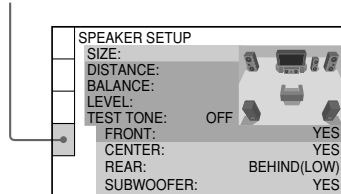
- When you set to "AUTO", the language setting may change. The "TRACK SELECTION" setting has higher priority than the "AUDIO" setting in "LANGUAGE SETUP" (page 19).
- If PCM, DTS, MPEG audio, and Dolby Digital sound tracks have the same number of channels, the system selects PCM, DTS, MPEG audio, and Dolby Digital sound tracks in this order.
- Depending on the DVD, the audio channel with priority may be predetermined. In this case, you cannot give priority to the DTS, MPEG audio, or Dolby Digital audio format by selecting "AUTO".

Speaker settings

— SPEAKER SETUP

Set up your speaker system for playback of 5.1CH DVDs.

Select "SPEAKER SETUP" in the Setup Display.



To return to the default setting

Select the item, then press CLEAR.

■ SIZE

When you do not connect center, rear speakers or sub woofer, or move the rear speakers, set the parameters for CENTER, REAR and SUBWOOFER. Since the front speaker setting is fixed, you cannot change them.

FRONT

- YES

CENTER

- YES: Normally select this.
- NONE: Select this when a center speaker is not used.

REAR

- BEHIND (LOW), BEHIND (HIGH), MIDDLE (LOW), MIDDLE (HIGH), SIDE (LOW), SIDE (HIGH): Specify the position and height to implement the Digital Cinema Surround modes in the "Virtual Multi Dimension" sound field (page 49) properly.
- NONE: Select this when rear speakers are not used.

SUBWOOFER

- YES: Select this when a subwoofer is used.
- NONE: Select this when a subwoofer is not used.

Notes

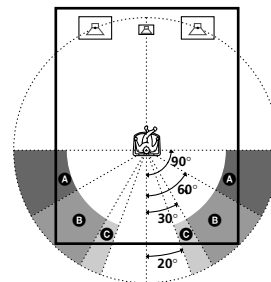
- When you select an item, the sound cuts off for a moment.
- Depending on the settings of other speakers, the subwoofer may output excessive sound.

Specifying the rear speaker position and height

If you select anything other than "NONE" in "REAR", specify the position and height of the rear speakers.

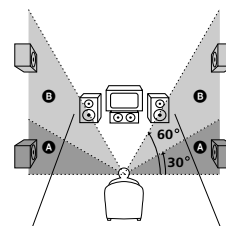
Rear speaker position

- SIDE: Select this if the location of your rear speakers corresponds to section **A**.
- MIDDLE: Select this if the location of your rear speakers corresponds to section **B**.
- BEHIND: Select this if the location of your rear speakers corresponds to section **C**.



Rear speaker height

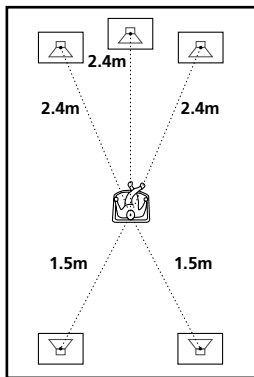
- LOW: Select this if the location of your rear speakers corresponds to section **A**.
- HIGH: Select this if the location of your rear speakers corresponds to section **B**.





■ **DISTANCE**

The default distance settings for the speakers in relation to the listening position is shown below.



Be sure to change the value in the Setup Display when you move the speakers.

- **FRONT** : Front speaker distance from the listening position can be set in 0.1 meter steps from 1.0 to 12.0 meters.
- **CENTER**: Center speaker distance can be moved up to 1.5 meters forward closer to the listening position, in 0.1 meter increments.
- **REAR**: Rear speaker distance can be moved up to 4.5 meter forward closer to the listening position, in 0.1 meter increments.

Notes

- When you select an item, the sound cuts off for a moment.
- If each of the front or rear speakers is not placed at an equal distance from your listening position, set the distance of the closest speaker.
- Do not place the rear speakers farther away from your listening position than the front speakers.

■ **BALANCE**

You can vary the balance of the left and right speakers as follows. Be sure to set “TEST TONE” to “ON” for easy adjustment. The default settings are in parentheses.

- **FRONT** (0): Adjust the balance between the front left and right speakers. (You can adjust from center in 6 steps to left or right.)
- **REAR** (0): Adjust the balance between the rear left and right speakers. (You can adjust from center in 6 steps to left or right.)

■ **LEVEL**

You can vary the level of each speakers as follows. Be sure to set “TEST TONE” to “ON” for easy adjustment. The default settings are in parentheses.

- **CENTER** (0 dB): Adjust the level of the center speaker (-6 dB to +6 dB, 1 dB steps).
- **REAR** (0 dB): Adjust the level of the rear speakers (-6 dB to +6 dB, 1 dB steps).
- **SUBWOOFER** (10 dB): Adjust the level of the subwoofer (-10 dB to +10 dB, 1 dB steps).

■ **TEST TONE**

The speakers will emit a test tone to adjust “BALANCE” and “LEVEL”.

- **OFF**: The test tone is not emitted from the speakers.
- **ON**: The test tone is emitted from each speaker in sequence while adjusting balance or level. When you select one of the “SPEAKER SETUP” items, the test tone is emitted from both left and right speakers simultaneously.

To adjust the volume of all the speakers at once

Turn VOLUME (or press VOL +/- on the remote).

continued

Speaker settings (continued)

Adjusting the speaker volume and level

1 When the playback is stopped, press DVD SET UP, then select “SPEAKER SETUP”.

2 Select “TEST TONE” and set “TEST TONE” to “ON”.

You will hear the test tone from each speaker in sequence.

3 From your listening position, select “BALANCE” or “LEVEL”, then press → or ← repeatedly to adjust the value of “BALANCE”, or press ↓ or ↑ repeatedly to adjust the value of “LEVEL”.

The test tone is emitted from both left and right speakers simultaneously.

4 Select “TEST TONE” and set “TEST TONE” to “OFF” to turn off the test tone.

Notes

- When you adjust the speaker settings, the sound cuts off for a moment.
- If you adjust these parameters using OSD while adjusting the speaker parameters using SETUP menu, the display on the unit turns off.

DVD/VIDEO CD/CD

Playing discs

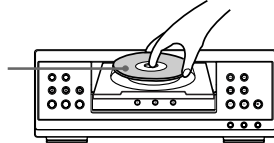
Loading a disc

- 1 Press one of the DISC 1-3 \blacktriangle buttons.

The disc tray slides out.

- 2 Place a DVD/VIDEO CD/CD with the label side up on the disc tray.

When you play a DVD/VIDEO CD/CD single, place it on the inner circle of the tray.



To insert additional discs, press \blacktriangle of the other numbers to open the disc tray.

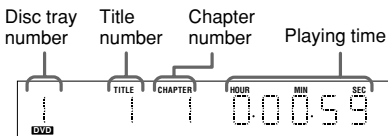
- 3 Press the same button to close the disc tray.

Playing a disc

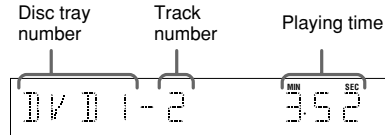
— Normal Play/Shuffle Play/ Slow-motion Play/Freeze Frame

You can play up to three discs (DVD, VIDEO CD, CD) in a row. Depending on the DVD or VIDEO CD, some operations may be different or restricted. Refer to the operating instructions supplied with the disc.

When playing a DVD:



When playing a VIDEO CD or CD:



- 1 Turn on your TV and select the video input.

Refer to the operating instructions supplied with your TV if you need help.

- 2 Turn FUNCTION to select "DVD".

- 3 When playback is stopped, press PLAY MODE repeatedly until the mode you want appears in the display.

Select	To play
ALL DISCS	All discs in the disc tray continuously.
1 DISC	The disc you have selected in the original order.
ALL DISCS SHUFFLE	The tracks on all discs in random order.
1 DISC SHUFFLE	The tracks on the disc you have selected in random order.
PROGRAM	The tracks on all discs in the order you want them to be played (see "Creating your own program" on page 28).

- 4 Press \blacktriangleright SELECT (or SELECT DVD \blacktriangleright on the remote).

Tips

- You cannot change the play mode during playback.
- You can change the play mode between 1 DISC and ALL DISCS using the on-screen display as follows:
 - 1 When playback is stopped, press DVD DISPLAY. The Control Menu appears.
 - 2 Press \uparrow/\downarrow to select "ONE/ALL DISCS", then press ENTER.
 - 3 Press \uparrow/\downarrow to select either "ONE DISC" or "ALL DISCS", then press ENTER.

continued

Playing a disc (continued)

Other operations

To	Do this
Stop playback	Press ■ (DVD/VIDEO CD/CD). The playback stops at the point ■ is pressed (Resume Play). Press ■ again to cancel the Resume Play (see page 30).
Pause playback	Press II ^{*1} . Press again to resume playback.
Select a track or chapter	During playback or pause, press ►► (or NEXT) (DVD/VIDEO CD/CD) to go forward or ◀◀ (or PREV) (DVD/VIDEO CD/CD) to go backward.
Find a point in a track title or chapter (Lock Search function)	Press ►► or ◀◀ (DVD/VIDEO CD/CD) during playback. Each time you press the button, the speed changes as follows: 1 (slow) ↔ 2 (faster than 1) Press ► SELECT to stop searching at the desired point.
Change the playback speed ^{*2} (Slow-motion play)	During playback, press SLOW ◀◀ or ►► ^{*3} on the remote. Each time you press the button, the speed switches between two slowed playback speeds. To return to normal playback, press ► SELECT.
Playing the disc frame by frame changing the playback speed ^{*2} (Freeze Frame)	During playback, press STEP ◀◀ or ►► ^{*3} on the remote. Each time you press the button, playback is advanced a single frame in the desired direction. To return to normal playback, press ► SELECT.
Select a disc when playback is stopped	Press one of the DISC 1–3 buttons (or D.SKIP on the remote).
Switch to DVD function from another source	Press one of the DISC 1–3 buttons (Automatic Source Selection).
Remove the disc	Press one of the DISC 1–3 ▲ buttons.

^{*1} There may be some disturbance in the video image.

^{*2} DVD and VIDEO CD only.

^{*3} SLOW ◀◀ and STEP ◀◀ are not available during playback of VIDEO CDs.

Notes

- Depending on the DVD or VIDEO CD, some operations may be prohibited.
- VIDEO CDs cannot be viewed slowly or frame by frame in the reverse direction.
- Under the following circumstances, the sound field is automatically set to “2CH STEREO”.
 - When recording.
 - When TAPE B is in REC PAUSE mode.
 - When recording using TAPE B.
- When using headphones, the sound from headphones is 2 channel.
- Switch the sound field to “2CH STEREO” when making an analog recording using a component connected to the MD OUT jacks on this unit. There is no audio output from the MD OUT jacks in the multi channel mode.
- Depending on the DVD, digital recording may not be done. In this case, perform analog recording. Turn FILE SELECT to select “2CH STEREO” when making an analog recording.
- Set the sound to “STEREO” using the AUDIO button when you play DTS sound tracks on a CD (page 34).

Playing DVDs using the menu

Some discs have a “title menu” or a “DVD menu”. On some DVDs, this may simply be called a “menu” or “title”.

Using the title menu

A DVD is divided into long sections of a picture or a music feature called “titles”. When you play a DVD which contains several titles, you can select the title you want using the title menu.

- 1 Turn FUNCTION to select “DVD”.**
- 2 Press TITLE.**
The title menu appears on the TV screen.
The contents of the menu vary from disc to disc.
- 3 Press $\uparrow/\downarrow/\leftarrow/\rightarrow$ or the numeric buttons to select the title you want to play.**
- 4 Press ENTER (A/V amplifier or remote).**
The playback starts from the selected title.

Using the DVD menu

Some DVDs allow you to select the disc contents using a menu. When you play these DVDs, you can select items such as the language for the subtitles and the language for the sound using the DVD menu.

- 1 Turn FUNCTION to select “DVD”.**
- 2 Press DVD MENU.**
The DVD menu appears on the TV screen.
The contents of the menu vary from disc to disc.
- 3 Press $\uparrow/\downarrow/\leftarrow/\rightarrow$ or the numeric buttons to select the item you want to change.**
- 4 To change other items, repeat step 3.**
- 5 Press ENTER (A/V amplifier or remote).**

Playing VIDEO CDs with PBC functions (Ver. 2.0)

— PBC Play

You can use menus on your TV screen to enjoy the disc’s interactive software. The menu format and structure may differ depending on each disc.

- 1 Turn FUNCTION to select “DVD”.**
- 2 Press \blacktriangleright SELECT (or SELECT DVD \blacktriangleright on the remote) to start playing a VIDEO CD with PBC functions (Ver. 2.0).**
The VIDEO CD and PBC indicators light and a PBC menu appears on your TV.
The PBC indicator lights during PBC playback of a PBC compatible VIDEO CD (Ver. 2.0).
- 3 Press \uparrow/\downarrow repeatedly to select a number from the menu, then press ENTER (A/V amplifier or remote).**
- 4 Continue playback according to the instructions on the menus to enjoy interactive playback.**

To	Do this
Stop playback	Press \blacksquare (DVD/VIDEO CD/CD).
See the rest of the menu	Press NEXT.
Go back to the top of the menu	Press PREV.
Go back to the previous menu	Press RETURN \curvearrowright .

continued

Playing VIDEO CDs with PBC functions (Ver. 2.0) (continued)

To	Do this
Cancel playback with PBC functions (Ver. 2.0)	When the playback is stopped, press ◀◀ or ▶▶ (DVD/VIDEO CD/CD) repeatedly to select the track you want, then press ENTER (A/V amplifier or remote) (or press the numeric buttons on the remote). The PBC indicator turns off and playback starts from the selected track. Still images, such as the menu screens, will not be shown.
Select a menu number using the remote	Press the numeric buttons, then press ENTER. To enter 0, press 10/0.

Note

Depending on the VIDEO CD, "Press ENTER" in step 3 may appear as "Press SELECT" in the operating instructions supplied with the disc.

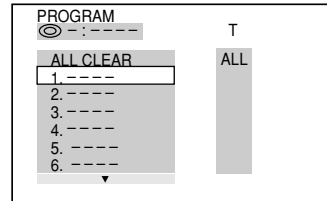
Creating your own program

— Program Play

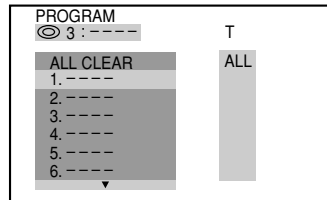
You can make a program of up to 25 steps from all the discs in the order you want them to be played.

- 1 Turn FUNCTION (or press FUNCTION on the remote) to select "DVD".**
- 2 When the playback is stopped, press PLAY MODE repeatedly until "PROGRAM" appears in the front panel display.**

The Program Display appears on the screen.

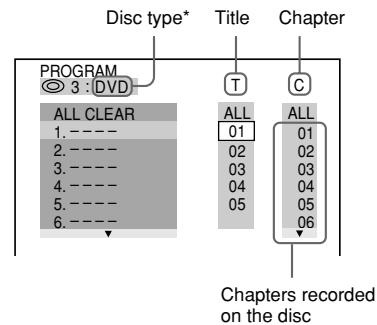


- 3 Press ENTER (A/V amplifier or remote), then press ↑ or ↓ repeatedly to select the disc.**



- 4 Press →.**

The cursor moves to the title or track (in this case, "01").



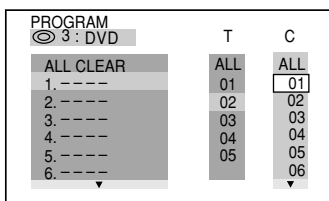
* "?" appears when the system has not loaded the disc information in the memory.

5 Select the title, chapter, or track you want to program.

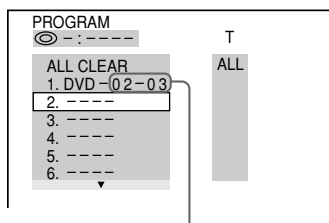
■ When programming a DVD

For example, select chapter "03" of title "02".

Press \uparrow/\downarrow or the numeric buttons to select "02" under "T", then press ENTER.



Next, press \uparrow/\downarrow or the numeric buttons to select "03" under "C", then press ENTER.



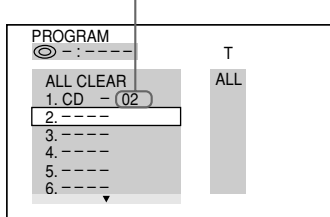
Selected title and chapter

■ When programming a VIDEO CD or CD

For example, select track "02".

Press \uparrow/\downarrow or the numeric buttons to select "02" under "T", then press ENTER.

Selected track



6 To program other discs, titles, chapters, or tracks, repeat steps 3 to 5.

7 Press \blacktriangleright SELECT (or SELECT DVD \blacktriangleright on the remote) to start Program Play.

Program Play starts.

To	Do this
Return to normal playback	Press CLEAR during playback.
Turn off the Program Display	Press PLAY MODE when the playback is stopped.
Change the program	To change the disc, select the step number you want to change using \uparrow/\downarrow after step 2 or 5, then press ENTER. To change the title, chapter, or track, select the one you want in step 5.
Cancel the programmed order	To cancel all the titles, chapters, or tracks in the programmed order, press \uparrow , and select "ALL CLEAR" in step 3. To cancel a step, select the step using \uparrow/\downarrow in step 3, then press CLEAR.

Tip

The program you made remains in the system's memory even after it has been played back. Press \blacktriangleright SELECT (or SELECT DVD \blacktriangleright on the remote) to play the same program again.

Notes

- The program is canceled when you change the function to TUNER or turn the system off.
- You may not be able to do Program Play depending on the DVD.
- You cannot make a program while playing a disc.
- When you switch the play mode to "PROGRAM" while "REPEAT 1" is selected, "REPEAT 1" is automatically canceled.

Resuming playback from the point you stopped the disc

— Resume Play

This system memorizes the point where you stopped the disc so you can resume from that point.

1 While playing a disc, press ■ (DVD/VIDEO CD/CD) to stop playback.

“RESUME” appears in the display. If “RESUME” does not appear, Resume Play is not available.

2 Press ► SELECT (or SELECT DVD ► on the remote).

The player starts playback from the point you stopped the disc in step 1.

To view from the beginning of the disc

When “RESUME” appears in the display, press ■ (DVD/VIDEO CD/CD), then press ► SELECT (or SELECT DVD ► on the remote).

Notes

- Depending on where you stopped the disc, the system may resume playback from a different point.
- Resume play is canceled when:
 - you press numeric buttons, ■,
 - I◀◀/▶▶I (DVD/VIDEO CD/CD), or D.SKIP on the remote.
 - you remove the disc.
 - you unplug the unit’s AC power cord.

Playing repeatedly

— Repeat Play

You can play all the titles/tracks or a single title/chapter/track on a disc.

In Shuffle or Program Play mode, the system repeats the titles or tracks in the shuffled or programmed order.

1 Press DVD DISPLAY.

The Control Menu appears.

2 Press ↑ or ↓ repeatedly to select “REPEAT”, then press ENTER.

If you do not select “OFF,” the “REPEAT” indicator lights in green.

3 Select the Repeat Play setting.

■ When playing a DVD and when Program Play is set to OFF

- OFF: does not play repeatedly.
- DISC: repeats all the titles (except for ALL DISCS SHUFFLE).
- TITLE: repeats the current title on a disc.*
- CHAPTER: repeats the current chapter (except for ALL DISCS SHUFFLE).

■ When playing a VIDEO CD/CD and when Program Play is set to OFF

- OFF: does not play repeatedly.
- DISC: repeats all the tracks on a disc (except for ALL DISCS SHUFFLE).
- TRACK: repeats the current track.*

■ When Program Play is set to ON

- OFF: does not play repeatedly.
- ON: repeats Program Play.

* When ALL DISCS SHUFFLE is selected, you can select the Repeat Play of TITLE or TRACK only.

To cancel Repeat Play

Press CLEAR.

Tip

You can quickly change the "REPEAT" setting by pressing REPEAT.

Notes

- You cannot perform Repeat Play during PBC playback of VIDEO CDs (page 27).
- You may not be able to perform Repeat Play depending on the DVD.
- If you select DISC repeat (with or without Program Play), the program is repeated up to 5 times.

Viewing information about the disc

Checking the playing time and remaining time

You can check the remaining time of the current track or that of the disc.

When a DVD/CD TEXT disc is loaded, you can check the information stored on the disc, such as the titles.

When the system detects DVD/CD TEXT discs, the "DVD TEXT" (or "CD TEXT") indication appears in the display.

Using the front panel display**Press DISPLAY.**

Each time you press the button, the display changes cyclically as follows:

During normal playback

When playing a DVD:

Playing time and number of the current title →
 Remaining time of the current title → Playing time and number of the current chapter →
 Remaining time of the current chapter →
 Text*¹ → Clock display (for 8 seconds) →
 Effect status

When playing a VIDEO CD (without PBC functions) or CD:

Playing time and current track number →
 Remaining time of the current track → Playing time of the disc → Remaining time of the disc →
 Text*¹ → Clock display (for 8 seconds) →
 Effect status

VIDEO CDs with PBC functions (Ver. 2.0):

Playing time of the current scene*² → Text*¹ →
 Clock display (for 8 seconds) → Effect status

continued

Checking the playing time and remaining time (continued)

When the playback is stopped

DVDs:

Total number of titles*³ → Title name of the disc*¹ → Clock display (for 8 seconds) → Effect status

VIDEO CDs or CDs:

Total number of tracks and the total playing time*³ → Title name of the disc*¹ → Clock display (for 8 seconds) → Effect status

*¹ With DVD/CD TEXT discs only (certain characters cannot be displayed). Depending on the disc, DVD/CD text does not appear and "NO TEXT" appears.

*² May not appear with still images, etc.

*³ When the playback is stopped and "RESUME" appears on the front panel display, the point where playback was stopped is displayed.

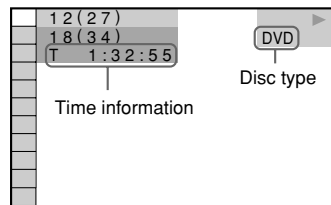
Using the on-screen display

1 Press DVD DISPLAY during playback.

The Control Menu appears.

2 Press DISPLAY repeatedly to change the time information.

The display and the kinds of time that you can change depend on the disc you are playing.



When playing a DVD

- T **:**:**
Playing time of the current title
- T-**:**:**
Remaining time of the current title
- C **:**:**
Playing time of the current chapter
- C-**:**:**
Remaining time of the current chapter

When playing a VIDEO CD (with PBC functions)

- **:**:**
Playing time of the current scene

When playing a VIDEO CD (without PBC functions) or CD

- T **:**:**
Playing time of the current track
- T-**:**:**
Remaining time of the current track
- D **:**:**
Playing time of the current disc
- D-**:**:**
Remaining time of the current disc

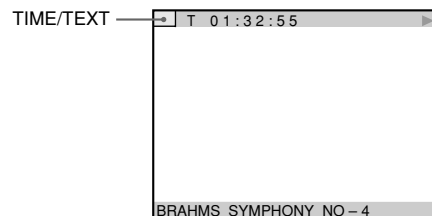
To turn off the Control Menu

Press DVD DISPLAY repeatedly until the Control Menu is turned off.

Checking the text information of the disc

Press DISPLAY repeatedly while playing a DVD or a TEXT-CD.

The "TIME/TEXT" information is displayed at the top of the screen. When the elapsed time of the chapter, or track is displayed, text information is displayed at the bottom of the screen.



Notes

- Only DVD/CD TEXT in English is displayed.
- When there is no text recorded on the disc, "NO TEXT" is displayed.
- If DISPLAY is not pressed for 2 seconds, the display disappears.

Checking the playback information

— **ADVANCED**

(DVD only)

You can check information such as the bit rate or the disc layer that is being played.

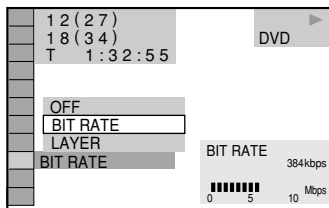
While playing a disc, an approximate bit rate of the playback picture is always displayed as Mbps (Mega bit per second) and the audio as Kbps (Kilo bit per second).

1 Press **DVD DISPLAY** during playback.

The Control Menu appears.

2 Press **↑** or **↓** repeatedly to select **“ADVANCED”**, then press **ENTER**.

The options for **“ADVANCED”** appear.



3 Press **↑** or **↓** repeatedly to select the item.

For each item, see **“Displays of each item”**.

- **BIT RATE:** Displays the bit rate.
- **LAYER:** Displays the layer and the pick-up point.

4 Press **ENTER**.

To close the “ADVANCED” display

Select **“OFF”** in step 3.

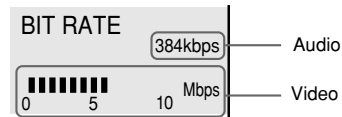
To turn off the Control Menu

Press **DVD DISPLAY** repeatedly until the Control Menu is turned off.

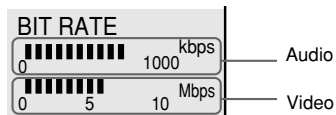
Displays of each item

By pressing **DVD DISPLAY** repeatedly, you can display either **“BIT RATE”** or **“LAYER”**, whichever was selected in **“ADVANCED”**.

BIT RATE

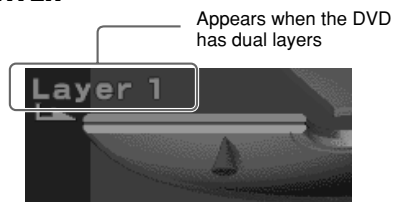


When playing MPEG audio sound tracks:



Bit rate refers to the amount of video/audio data per second in a disc. The higher the bit rate, the larger the amount of data. When the bit rate level is high, there is a large amount of data. However, this does not always mean that you can get higher quality pictures or sounds.

LAYER



This item indicates the approximate point where the disc is playing. When the DVD has dual layers, the system indicates which layer is being read (**“Layer 0”** or **“Layer 1”**). For details on the layers, see page 67 (DVD).

Sound adjustment

Changing the sound

If a DVD is recorded with multilingual tracks, you can select the language you want while playing the DVD. If the DVD is recorded in multiple audio formats (PCM, Dolby Digital, MPEG audio, or DTS), you can select the audio format you want while playing the DVD.

With stereo CDs or VIDEO CDs, you can select the sound from the right or left channel and listen to the sound of the selected channel through both the right and left speakers. (In this case, the sound loses its stereo effect.) For example, when playing a disc containing a song with the vocals on the right channel and the instruments on the left channel, you can select the left channel and hear only the instruments from both speakers.

1 Press DVD DISPLAY during playback.

The Control Menu appears.

2 Press \uparrow or \downarrow repeatedly to select "AUDIO", then press ENTER.

3 Press \uparrow or \downarrow repeatedly to select the audio signal you want.

■ When playing a DVD

Depending on the DVD, the choice of the language varies. When 4 digits are displayed, they represent the language code (see the language code list on page 69).

When the same language is displayed two or more, the DVD is recorded in multiple audio formats.

■ When playing a VIDEO CD or CD

- STEREO: The standard stereo sound.
- 1/L: The sound of the left channel (monaural).
- 2/R: The sound of the right channel (monaural).

4 Press ENTER.

To turn off the Control Menu

Press DVD DISPLAY repeatedly until the Control Menu is turned off.

Tip

You can select "AUDIO" directly by pressing AUDIO on the remote. Each time you press the button, the item changes.

Notes

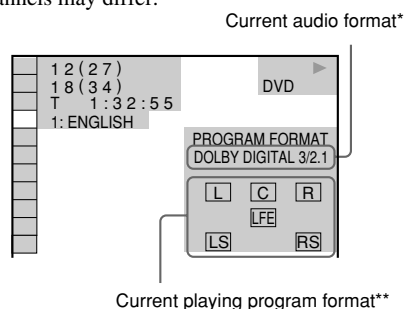
- For discs not in multiple audio format, you cannot change the sound.
- During DVD playback, the sound may change automatically.
- If you press DVD DISPLAY while adjusting parameters using buttons on the unit, the display of the front panel turns off.

Displaying the audio information of the disc

(DVD only)

When you select "AUDIO", the channels being played are displayed on the screen.

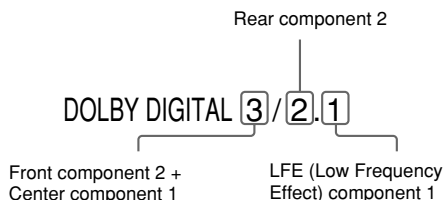
For example, in Dolby Digital format, multiple signals ranging from monaural to 5.1 channel signals can be recorded on a DVD. Depending on the DVD, the number of the recorded channels may differ.



* "PCM", "MPEG", "DTS", or "DOLBY DIGITAL" is displayed.

For "DOLBY DIGITAL", the channels in the playing track are displayed numerically as follows:

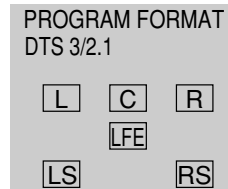
For Dolby Digital 5.1 ch:



**The letters in the program format display mean the following sound component:

- L: Front (left)
- R: Front (right)
- C: Center
- LS: Rear (left)
- RS: Rear (right)
- S: Rear (monaural): The rear component of the Dolby Surround processed signal or the Dolby Digital signal.
- LFE: LFE (Low Frequency Effect)

- DTS
“LFE” is always enclosed in a solid line regardless of the LFE signal component being output.

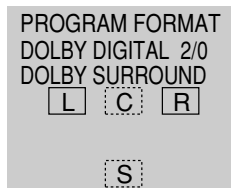


The display examples are as follows:

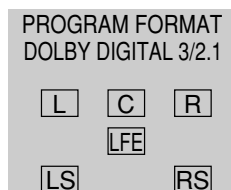
- PCM (stereo)



- Dolby Surround



- Dolby Digital 5.1ch
When an LFE signal component is output, “LFE” is enclosed in a solid line. When an LFE signal component is not output, “LFE” is enclosed in a broken line.



Note
When the signal contains rear signal components such as LS, RS, or S, the Surround effect is enhanced (page 48).

DVD/VIDEO CD/CD

Enjoying movies

Searching for a title/ chapter/track/index/scene

You can search a DVD disc by title or chapter, and you can search a VIDEO CD or CD by track, index, or scene. As titles and tracks are assigned unique numbers on the disc, you can select the desired one by entering its number. Or, you can search for a scene using the time code (TIME SEARCH).

- 1** Turn **FUNCTION** to select **"DVD"**.
- 2** Press **DVD DISPLAY**.
The Control Menu appears.
- 3** Press **↑** or **↓** repeatedly to select the search method.
 - **When playing a DVD**
"TITLE", "CHAPTER", or "TIME/TEXT"
Select "TIME/TEXT" for TIME SEARCH.
 - **When playing a VIDEO CD**
"TRACK" or "INDEX"
 - **When playing a VIDEO CD with PBC functions**
"SCENE"
 - **When playing a CD**
"TRACK" or "INDEX"
- 4** Press **ENTER**.
"**(*)" changes to "-- (**)".
The number in parentheses indicates the total number of titles, chapters, tracks, indexes, or scenes.
- 5** Press **↑** or **↓** repeatedly, or press the numeric buttons to select the title, chapter, track, index, or scene number you want to search.
 - If you make a mistake**
Press **CLEAR** to cancel the number, then select another number.
- 6** Press **ENTER**.
The playback starts from the selected number.

To search for a scene using the time code (TIME SEARCH)

(DVD only)

- 1** In step 3, select **"TIME/TEXT"**.
"T **:***:**" (playing time of the current title) is selected.
- 2** Press **ENTER**.
"T **:***:**" changes to "T --:--:--".
- 3** Input the time code using the numeric buttons, then press **ENTER**.
For example, to find the scene at 2 hours, 10 minutes, and 20 seconds after the beginning, just enter "2:10:20".

To turn off the Control Menu

Press **DVD DISPLAY** repeatedly until the Control Menu is turned off.

Note

The displayed number of title, chapters, or tracks is the same number of title, chapters, or tracks recorded on the disc.

Changing the angles

(DVD only)

When playing a DVD on which various angles (multi-angles) for a scene are recorded, the "ANGLE" indicator lights in green. This means that you can change the viewing angle. For example, while playing a scene of a train in motion, you can display the view from either the front of the train, the left window of the train or from the right window without having the train's movement interrupted.

1 Press DVD DISPLAY during playback.
The Control Menu appears.

2 Press \uparrow or \downarrow repeatedly to select "ANGLE".
The angle number appears. The number in parentheses indicates the total number of angles.

3 Press ENTER.
The angle number changes to "-".

4 Select the angle you want using the numeric buttons or \uparrow/\downarrow , then press ENTER.
The angle is changed to the selected angle.

To turn off the Control Menu

Press DVD DISPLAY repeatedly until the Control Menu is turned off.

Tip

You can select the angle by pressing ANGLE on the remote. Each time you press the button, the angle changes.

Note

Depending on the DVD, you may not be able to change the angles even if multi-angles are recorded on the DVD.

Displaying the subtitles

(DVD only)

With DVDs on which multilingual subtitles are recorded, you can change the subtitle language while playing a DVD, or turn the subtitles on or off whenever you want. For example, you can select the language you want to master and turn the subtitles on for better understanding.

1 Press DVD DISPLAY during playback.
The Control Menu appears.

2 Press \uparrow or \downarrow repeatedly to select "SUBTITLE", then press ENTER.
The options for "SUBTITLE" appear.

3 Press \uparrow or \downarrow repeatedly to select the language you want, then press ENTER.
The subtitles are displayed in the selected language.

To cancel the SUBTITLE setting

Select "OFF" in step 3.

To turn off the Control Menu

Press DVD DISPLAY repeatedly until the Control Menu is turned off.

Tip

You can select the subtitle by pressing SUBTITLE on the remote. Each time you press the button, the language changes.

Notes

- When 4 digits are displayed in step 3, they indicate the language code. Refer to the language code list on page 69 to see the language the code represents.
- Depending on the DVD, you may not be able to change the subtitles even if multilingual subtitles are recorded on the DVD.

Using various additional functions

Locking discs

— CUSTOM PARENTAL CONTROL/ PARENTAL CONTROL

You can set two kinds of playback restrictions for the disc.

- Custom Parental Control
You can set the playback restrictions so that the system will not play inappropriate discs. You can set the same Custom Parental Control password for up to 50 discs. When you set the fifty-first disc, the playback restriction for the first disc is canceled.
- Parental Control
You can limit the playback of some DVDs according to a predetermined level such as the age of the users. The limited scene is not played, or replaced by a different scene.

The same password is used for both Custom Parental Control and Parental Control.

Custom Parental Control

1 Insert the disc you want to lock.

If the disc is playing, press ■ (DVD/VIDEO CD/CD) to stop playback.

2 When the playback is stopped, press DVD DISPLAY.

The Control Menu appears.

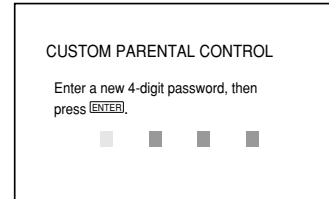
3 Press ↑ or ↓ repeatedly to select “CUSTOM PARENTAL CONTROL”, then press ENTER.

The “CUSTOM PARENTAL CONTROL” display appears.

4 Press ↑ or ↓ repeatedly to select “ON →”, then press ENTER.

■ If you have not entered a password

The display for registering a new password appears.

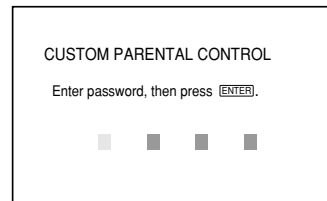


Enter a 4-digit password using the numeric buttons, then press ENTER.

The display for confirming the password appears.

■ When you have already registered a password

The display for entering the password appears.



5 Enter or re-enter your 4-digit password using the numeric buttons, then press ENTER.

“Custom parental control is set.” appears and the screen returns to the Control Menu Display.

If you make a mistake entering your password

Press ← before you press ENTER and input the correct number.

If you make a mistake

Press RETURN ↵, then start from step 3 again.

To turn off the Control Menu

Press RETURN ↵, then press DVD DISPLAY repeatedly until the Control Menu is turned off.

To turn off the Custom Parental Control function

- 1 In step 4, select "OFF →", then press ENTER.
- 2 Enter your 4-digit password using the numeric buttons, then press ENTER.

To change the password

- 1 In step 4, Press ↑ or ↓ repeatedly to select "PASSWORD →", then press ENTER. The display for entering the password appears.
- 2 Enter your 4-digit password using the numeric buttons, then press ENTER.
- 3 Enter a new 4-digit password using the numeric buttons, then press ENTER.
- 4 To confirm your password, re-enter it using the numeric buttons, then press ENTER.

Playing the disc for which Custom Parental Control is set

- 1 **Insert the disc for which Custom Parental Control is set.**
The "CUSTOM PARENTAL CONTROL" display appears.
- 2 **Enter your 4-digit password using the numeric buttons, then press ENTER.**
The system is ready for playback.

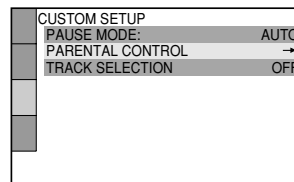
Tip

If you forgot your password, enter the 6-digit number "199703" using the numeric buttons when the "CUSTOM PARENTAL CONTROL" display asks you for your password, then press ENTER. The display will ask you to enter a new 4-digit password.

Limiting playback by children (Parental Control)

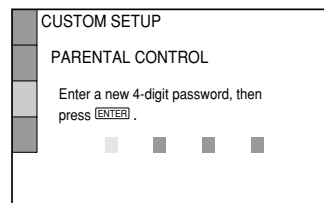
(DVD only)

- 1 **When the playback is stopped, press DVD SET UP.**
The Control Menu appears.
- 2 **Press ↑ or ↓ repeatedly to select "CUSTOM SETUP", then press ENTER.**
The "CUSTOM SETUP" display appears.
- 3 **Press ↑ or ↓ repeatedly to select "PARENTAL CONTROL →", then press ENTER.**



■ If you have not entered a password

The display for registering a new password appears.

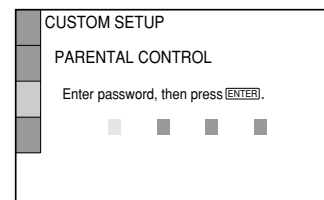


Enter a 4-digit password using the numeric buttons, then press ENTER.

The display for confirming the password appears.

■ When you have already registered a password

The display for entering the password appears.

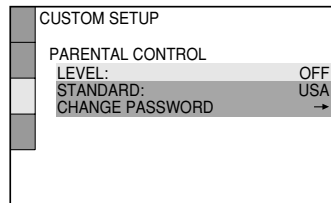


continued

Locking discs (continued)

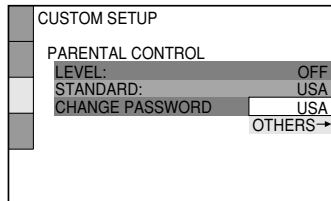
- 4** Enter or re-enter your 4-digit password using the numeric buttons, then press ENTER.

The display for setting the playback limitation level and changing the password appears.



- 5** Press ↑ or ↓ repeatedly to select “STANDARD”, then press ENTER.

The options for “STANDARD” appears.

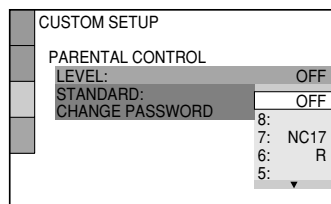


- 6** Press ↑ or ↓ repeatedly to select a geographic area as the playback limitation level, then press ENTER.

The area is selected.
When you select “OTHERS →”, select and enter the standard code in the table on page 41 using the numeric buttons.

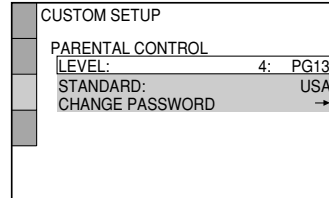
- 7** Press ENTER.

The options for “LEVEL” appears.



- 8** Press ↑ or ↓ repeatedly to select the level you want, then press ENTER.

The Parental Control setting is completed.



The lower the value, the more strict the limitation.

If you make a mistake

Press RETURN ↵ to go back to the previous screen.

To turn off the Control Menu

Press DVD DISPLAY repeatedly until the Control Menu is turned off.

To turn off the Parental Control function and play the DVD after entering your password

Set “LEVEL” to “OFF” in step 8.

To change the password

- 1** In step 5, press ↓ to select “CHANGE PASSWORD →”, then press ENTER. The display for entering the password appears.

- 2** Follow step 3 to enter a new password.

Playing the disc for which Parental Control is set

1 Insert the disc and press ► SELECT.

The “PARENTAL CONTROL” display appears.

2 Enter your 4-digit password using the numeric buttons, then press ENTER.

The playback starts.

Tip

If you forgot your password, remove the disc and repeat steps 1 to 5 of “Limiting playback by children”. When you are asked to enter your password, enter “199703” using the numeric buttons, then press ENTER. The display will ask you to enter a new 4-digit password. After you enter a new 4-digit password in step 3, replace the disc in the system and press ► SELECT. When the “PARENTAL CONTROL” display appears, enter your new password.

Notes

- When you play DVDs which do not have the Parental Control function, playback cannot be limited on this system.
- Depending on the DVD, you may be asked to change the parental control level while playing the disc. In this case, enter your password, then change the level. If the Resume Play mode is canceled, the level returns to the original level.

Area code

Standard	Code number	Standard	Code number
Argentina	2044	Korea	2304
Australia	2047	Malaysia	2363
Austria	2046	Mexico	2362
Belgium	2057	Netherlands	2376
Brazil	2070	New Zealand	2390
Canada	2079	Norway	2379
Chile	2090	Pakistan	2427
China	2092	Philippines	2424
Denmark	2115	Portugal	2436
Finland	2165	Russia	2489
France	2174	Singapore	2501
Germany	2109	Spain	2149
Hong Kong	2219	Sweden	2499
India	2248	Switzerland	2086
Indonesia	2238	Taiwan	2543
Italy	2254	Thailand	2528
Japan	2276	United Kingdom	2184

Tuner

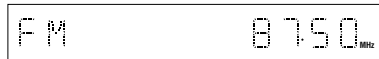
Presetting radio stations

You can preset 20 stations for FM and 10 stations for AM.

1 Press TUNER/BAND repeatedly to select FM or AM.

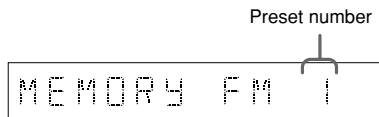
2 Press and hold TUNING + or – until “AUTO” appears in the display.

Scanning stops when the system tunes in a station. “TUNED” and “STEREO” (for a stereo program) appear.



3 Press TUNER MEMORY.

A preset number appears in the display. The stations are stored from preset number 1.



4 Press ENTER (Tuner or remote).

The station is stored.

5 Repeat steps 1 to 4 to store other stations.

To tune in a station with a weak signal

Press TUNING + or – repeatedly to tune in the station manually.

To set another station to an existing preset number

Start over from step 1. After step 3, press PRESET + or – repeatedly to select the preset number where you want to store a new station, then proceed to step 4.

Tip

The preset stations are retained for half a day even if you unplug the power cord or if a power failure occurs.

To change the AM tuning interval (Except for European and Saudi Arabian models)

The AM tuning interval is factory set to 9 kHz (10 kHz in some areas). To change the AM tuning interval, tune in any AM station first, then turn off the power. While holding down ENTER (Tuner), turn the power back on. Release I/⏻ first, then release ENTER (Tuner). Press I/⏻ again. The AM tuning interval is changed. When you change the interval, AM preset stations will be erased. To reset the interval, repeat the same procedure.

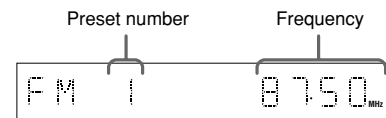
Listening to the radio

— Preset Tuning

Preset radio stations in the tuner’s memory first (see “Presetting radio stations”).

1 Press TUNER/BAND repeatedly to select the band you want.

2 Press PRESET + or – repeatedly to tune in the preset station you want.



To	Do this
Turn off the radio	Press I/⏻.

To listen to non-preset radio stations

In step 2, press TUNING + or – repeatedly (Manual Tuning) or press and hold TUNING + or – (Automatic Tuning).

Notes

- When the TUNER function is selected, the OSD does not appear on the screen.
- When DVD is selected as the current function and TUNER/BAND is pressed to select the TUNER function, some time may be necessary before the function can be switched.
- When you change the function from DVD to TUNER, “WAIT” may flash on the front panel display. While this flashes, there is no audio output.

Tips

- When an FM program is noisy, press STEREO/MONO so that "MONO" appears in the display. There will be no stereo effect, but the reception will improve.
- To improve broadcast reception, reorient the antennas.

Using the Radio Data System (RDS)

(European model only)

What is the Radio Data System?

Radio Data System (RDS) is a broadcasting service that allows radio stations to send additional information along with the regular program signal. This tuner offers convenient RDS features like station name display and location of stations by program type. RDS is available only for FM stations.

Note

RDS may not work properly if the station you are tuned to is not transmitting the RDS signal properly or if the signal is weak.

Receiving RDS broadcasts

Simply select a station from the FM band.

When you tune in a station that provides RDS services, the station name appears in the display.

To check the RDS information

Press DISPLAY.

Each time you press the button, the display changes cyclically as follows:

Station name* → Frequency → Program type* → Clock display → Effect status

* If the RDS broadcast is not received, the station name and program type may not appear in the display.

Locating a station by program type (PTY)

You can locate a station you want by selecting a program type. The tuner tunes in the type of programs currently being broadcast from the RDS stations stored in the tuner's preset memory.

The types of programs include NEWS, AFFAIRS (current news), INFORMATION, SPORT, EDUCATION (education programs), DRAMA, CULTURE, SCIENCE, VARIED (interviews, games and comedy), POP, ROCK, EASY MUSIC, L.CLASSICAL, S.CLASSICAL, OTHER MUSIC, WEATHER, FINANCE, CHILDREN, SOCIAL, RELIGION, PHONE IN, TRAVEL, LEISURE, JAZZ, COUNTRY (country music), NATION (nation's popular music), OLDIES, FOLK, DOCUMENTARY (investigative features), ALARM TEST (test signal for emergency broadcast), ALARM-ALARM (emergency broadcast) and NONE (any programs not defined above).

1 Press PTY while listening to the radio.

2 Press PRESET + or – repeatedly to select the program type you want.

3 Press ENTER (Tuner or remote).

"SEARCH" and the selected program type appear alternately in the display.

When the tuner receives a program, the preset station name flashes.

4 Press PRESET + or – repeatedly to continue searching for the station name you want.

5 Press ENTER (Tuner or remote) while the preset station name you want is flashing.

To cancel the PTY search

Press PTY again.

Note

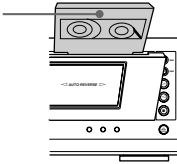
"NO PTY" appears when the program type you selected is not currently being broadcast.

Tape

Loading a tape

- 1 Press **▲** (Deck A or B).
- 2 Insert a tape in deck A or B.

Insert with the side you want to play/record facing forward.



Playing a tape

You can use TYPE I (normal), TYPE II (CrO₂), or TYPE IV (metal) tapes. The deck automatically detects the tape type.

- 1 Load a tape.
- 2 Press **DIRECTION** repeatedly to select **↔** to play one side, **↔↔** to play both sides, or **RELAY*** (Relay Play) to play both decks in succession.
- 3 Press **▶** (Deck A or B) (or, **TAPE A** **◀▶** or **TAPE B** **◀▶** on the remote).

The tape starts playing.

Press **◀** (Deck A or B) to play the reverse side. When using the remote, press **TAPE A** **◀▶** or **TAPE B** **◀▶** again.

When you select **↔↔** or **RELAY**, the deck stops automatically after repeating the sequence 5 times.

* Relay Play always follow this cyclic sequence:
Deck A (front side) → Deck A (reverse side) →
Deck B (front side) → Deck B (reverse side)

To	Do this
Stop playback	Press ■ (Deck A or B).
Fast-forward or rewind	Press ◀◀ or ▶▶ (Deck A or B) when the playback is stopped.
Remove the cassette	Press ▲ (Deck A or B).

Tip

When you want to reduce the hiss noise in low-level high-frequency signals, press **DOLBY NR** so that "DOLBY NR" appears in the display.

Searching for the beginning of a track (AMS*)

During playback, press **◀◀** or **▶▶** (Deck A or B) repeatedly for the number of songs you want to skip forward (or backward).

The search direction, + (forward) or - (back), and number of songs being skipped (1-9) appear in the display.

Example: searching forward 2 songs

TAPE B 1 / 1 + 2

* Automatic Music Sensor

Note

The AMS function may not operate correctly under the following circumstances:

- When the unrecorded space between songs is less than 4 seconds long.
- When the unit is placed near a television.

Recording to a tape

— CD Synchro Recording/High-Speed Dubbing/Recording Manually/Program Edit

You can record from a DVD, VIDEO CD, CD, tape, radio or other connected component. You can use TYPE I (normal) or TYPE II (CrO₂) tapes. The recording level is adjusted automatically.

Steps	Recording from a VIDEO CD/CD (CD Synchro Recording)	Recording from a tape (High-Speed Dubbing)	Recording manually
1	Insert a recordable tape into deck B.		
2	Turn FUNCTION to select "DVD".	Turn FUNCTION to select "TAPE A".	Turn FUNCTION to select the recording source.
3	Insert the VIDEO CD/CD you want to record.	Insert the tape you want to record into deck A.	Prepare the recording source.
4	Press CD SYNC.	Press HI-DUB.	Press REC PAUSE/START.
	Deck B stands by for recording. "REC" indicator in the display flashes. To reduce the hiss noise in low-level high-frequency signals, press DOLBY NR so that "DOLBY NR" appears in the display (except when recording from a tape).		
5	Press DIRECTION repeatedly to select ⇄ to record on one side. Select ⇄⇄ (or RELAY) to record on both sides.		
6	Press REC PAUSE/START. Recording starts.		
7			Start playing the recording source.

To	Press
Stop recording	■ (DVD/VIDEO CD/CD or Deck B).
Pause recording*	REC PAUSE/START.

* Only when recording manually.

Tips

- If you want to record from the reverse side, press ◀ or ▶ (Deck B) (or TAPE B ◀▶ on the remote) which does not light up after step 4 (when the deck B is in recording pause).
- When you record on both sides, be sure to start from the front side. If you start from the reverse side, recording stops at the end of the reverse side.
- (High-Speed Dubbing only)
If you set direction to ⇄⇄ when the tapes have different lengths, the tapes in each deck reverse independently. If you select RELAY, the tapes in both decks reverse together.
- CD synchro recording is not available with DVDs.

Note

The sound field automatically switches to 2CH STEREO when you start recording.

continued

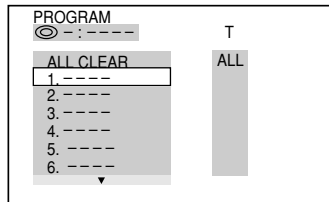
Recording to a tape (continued)

Recording a VIDEO CD/CD by specifying the track order

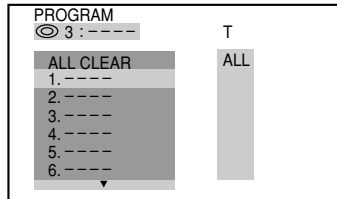
— Program Edit

When programming, make sure the playing times for each side do not exceed the length of one side of the tape.

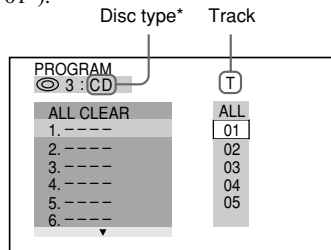
- 1** Insert a recordable tape into deck B, then turn FUNCTION to select "DVD".
- 2** When the playback is stopped, press PLAY MODE repeatedly until "PROGRAM" appears in the front panel display. The Program Display appears on the screen.



- 3** Press ENTER (A/V amplifier or remote), then press ↑ or ↓ repeatedly to select the disc.

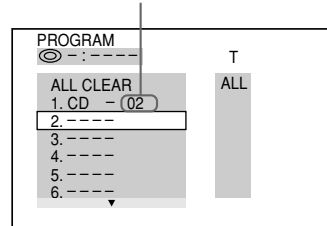


- 4** Press →. The cursor moves to the track (in this case, "01").



- 5** Select the track you want to program.

For example, select track "02". Press ↑/↓ or the numeric buttons to select "02" under "T", then press ENTER.



- 6** To program additional steps, repeat steps 3 to 5.

- 7** Press CD SYNC.

Deck B stands by for recording. To reduce the hiss noise in low-level high-frequency signals, press DOLBY NR so that "DOLBY NR" appears in the display. "REC" indicator in the display flashes.

- 8** Press DIRECTION repeatedly to select ⇌ to record on one side. Select ⇔ (or RELAY) to record on both sides.

- 9** Press REC PAUSE/START.

Recording starts.

To cancel Program Edit

Press PLAY MODE repeatedly until "1 DISC" or "ALL DISCS" appears in the display.

* "?" appears when the system has not loaded the disc information in the memory.

Timer-recording radio programs

To timer-record, you must set the clock (see "Setting the time" on page 17) and preset the radio stations (see "Presetting radio stations" on page 42) beforehand.

1 Tune in the preset radio station (see "Listening to the radio" on page 42).

2 Press CLOCK/TIMER (or CLOCK/TIMER SET on the remote).

"DAILY1 SET" flashes.

3 Press \uparrow or \downarrow repeatedly to select "REC SET", then press ENTER (A/V amplifier or remote).

"ON" appears and the hour indication flashes.

4 Set the time to start recording.

Press \uparrow or \downarrow repeatedly to set the hour, then press ENTER (A/V amplifier or remote).

The minute indication flashes.

Press \uparrow or \downarrow repeatedly to set the minutes, then press ENTER (A/V amplifier or remote).

The hour indication flashes again.

5 Set the time to stop recording following step 4.

The start time appears, followed by the stop time, the preset radio station to be recorded (e.g., "TUNER FM 5"), then the original display appears.

6 Insert a recordable tape into deck B.

7 Turn off the power.

When the recording starts, the volume level is set to the minimum.

To	Do this
Check the setting	Press TIMER SELECT (or CLOCK/TIMER SELECT on the remote) and press \uparrow or \downarrow repeatedly to select "REC SELECT", then press ENTER (A/V amplifier or remote).
Change the setting	Start over from step 1.
Cancel the Timer-recording	Press TIMER SELECT (or CLOCK/TIMER SELECT on the remote) and press \uparrow or \downarrow repeatedly to select "TIMER OFF", then press ENTER (A/V amplifier or remote).

Notes

- If the power is on at the preset time, the Timer-recording does not work.
- When you use the Sleep Timer, the Timer-recording will not turn on the system until the Sleep Timer turns it off.
- The power turns on 15 seconds before the preset time.

Sound Adjustment

Adjusting the sound

To reinforce bass (DBFB*)

Press DBFB on the remote.

Each time you press the button, the display changes as follows:

DBFB ON ↔ DBFB OFF

* Dynamic Bass Feedback

For a powerful sound

Press GROOVE on the remote.

Each time you press the button, the display changes cyclically as follows:

GROOVE → V-GROOVE → OFF

GROOVE: The volume switches to power mode and the equalizer curve changes. DBFB is automatically set to full strength.

V-GROOVE: The volume switches to power mode, the lower bass frequencies of the sound you are listening to is powerfully reinforced, and the equalizer curve changes. DBFB is automatically set to full strength.



Selecting a sound field

Turn FILE SELECT (or press FILE SELECT +/- on the remote) to select the sound field you want.

The current sound field name appears in the display.

See below for the information of each sound field.

Tips

- You can also select a sound field by pressing ← or → while indicators on the SUR and EQ buttons are turned on or off.
- You can identify the encoding format of program software by looking at its packaging.
Dolby Digital discs are labeled with the  logo, and Dolby Surround encoded programs are labeled with the  logo.

■ 2 Channel Stereo (2CH STEREO)

Outputs the sound from the front left and right speakers and a subwoofer. Standard two channel (stereo) sources completely bypass the sound field processing. Multi channel surround formats are downmixed to two channels.

■ Auto Format Decoding (A.F.D.)

Automatically detects the type of audio signal being input (Dolby Digital, DTS, Dolby Pro Logic, or standard 2 channel stereo) and performs the proper decoding if necessary. This mode presents the sound as it was recorded/encoded, without adding any effects.

■ Normal Surround (NORMAL SURR.)

Software with multi channel surround audio signals is played according to the way it was recorded. Software with 2 channel audio signals, is decoded with Dolby Pro Logic to create surround effects.

■ Cinema Studio A (C. STUDIO A)¹⁾

Reproduces the sound characteristics of the Sony Pictures Entertainment's classic editing studio.

■ Cinema Studio B (C. STUDIO B)¹⁾

Reproduces the sound characteristics of the Sony Pictures Entertainment's mixing studio which is one of the most up-to-date facilities in Hollywood.

■ Cinema Studio C (C. STUDIO C)¹⁾

Reproduces the sound characteristics of the Sony Pictures Entertainment's BGM recording studio.

■ **Virtual Multi Dimension (V.M.DIMENS.)²⁾**

Uses 3D sound imaging to create an array of virtual rear speakers positioned higher than the listener from a single pair of actual rear speakers. This mode creates 5 sets of virtual speakers surrounding the listener at approximately a 30° angle of elevation.

■ **Virtual Semi Multi Dimension (V.SEMI M.D.)²⁾**

Uses 3D sound imaging to create virtual rear speakers from the sound of the front speakers without using actual rear speakers. This mode creates 5 sets of virtual speakers surrounding the listener at a 30° angle of elevation.

■ **SMALL HALL³⁾**

Reproduces the acoustics of a small rectangular concert hall.

■ **LARGE HALL³⁾**

Reproduces the acoustics of a large rectangular concert hall.

■ **OPERA HOUSE³⁾**

Reproduces the acoustics of an opera house.

■ **JAZZ CLUB³⁾**

Reproduces the acoustics of a jazz club.

■ **DISCO/CLUB³⁾**

Reproduces the acoustics of a discotheque/ dance club.

■ **CHURCH³⁾**

Reproduces the acoustics of a stone church.

■ **LIVE HOUSE³⁾**

Reproduces the acoustics of a 300-seat live house.

■ **ARENA³⁾**

Reproduces the acoustics of a 1000-seat concert hall.

■ **STADIUM³⁾**

Reproduces the feeling of a large open-air stadium.

■ **GAME³⁾**

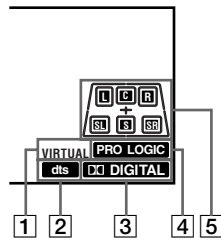
Obtains maximum audio impact from video game software.

- 1) You can select directly by pressing the buttons on the front panel (CINEMA STUDIO A–C).
- 2) “VIRTUAL” sound field: Sound field with virtual speakers.
- 3) These sound fields are not displayed even if you turn FILE SELECT (or press FILE SELECT +/- on the remote) while the tuner is decoding the DTS signals. When the tuner starts decoding the DTS signals while one of these sound fields is selected, the sound field automatically switches to “A.F.D.” (Auto Format Decoding).

Notes

- The effects provided by the virtual speakers may cause increased noise in the playback signal.
- When listening with sound fields that employ the virtual speakers, you will not be able to hear any sound coming directly from the rear speakers.
- To listen to two channel (stereo) sources using the front left and right speakers and a subwoofer, select “A.F.D.” or “2CH STEREO”.
- If you change the setting of sound, such as changing the sound field menu, while recording, the recording sound is interrupted at the point.

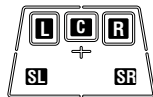
Understanding the multi channel surround displays



- 1 **VIRTUAL:** Lights up when the sound field with virtual speakers is selected.
- 2 **dts:** Lights up when DTS signals are input.
- 3 **DIGITAL:** Lights up when the unit is decoding signals recorded in the Dolby Digital format.
- 4 **PRO LOGIC:** Lights up when the unit applies Pro Logic processing to two channel signals in order to output the center and rear channel signals. However, this indicator does not light if the rear speakers are set to "NO".
- 5 **Playback channel indicators:** The letters (L, C, R, etc.) indicate the channels being played back. The boxes around the letters vary to show how the unit downmixes the source sound (based on the speakers settings). When using sound fields like "LARGE HALL" or "SMALL HALL", the unit adds reverberation based on the source sound.
L (Front Left), R (Front Right), C (Center (monaural)), SL (Rear Left), SR (Rear Right), S (Rear (monaural or the rear components obtained by Pro Logic processing))

Example:

Recording format (Front /Rear): 3/2
Output channel: Rear speakers absent
Sound Field: A.F.D.



Customizing sound fields

By adjusting the surround parameters and the equalization of the front speakers, you can customize the sound fields to suit your particular listening situation.

Once you customize a sound field, the changes are stored in the memory indefinitely (unless the unit is unplugged for half a day). You can change a customized sound field any time by making new adjustments to the parameters.

See the tables starting from page 74 for the parameters available in each sound field.

To get the most from multi channel surround sound

Position your speakers and do the procedures described in "Multi channel surround setup" starting from page 14 before you customize a sound field.

Adjusting the surround parameters

The SUR menu contains parameters that let you customize various aspects of the current sound field. The settings available in this menu are stored individually for each sound field.

1 Start playing a program source encoded with multi channel surround sound, then select a sound field.

MULTI CHANNEL DECODING indicator lights up when the tuner is decoding signals recorded in a multi channel format.

When the selected sound field contains adjustable surround parameters, the SUR button lights up.

2 When the SUR button lights up, press SUR.

The button starts blinking and the first parameter is displayed.

3 Press ← or → repeatedly to select the parameter you want to adjust.

4 Press ↑ or ↓ repeatedly to select the setting you want.

The setting is stored.

5 Press ENTER (A/V amplifier or remote).

The SUR button lights up. See the table on page 73 for the surround parameters.

■ **Effect level (EFFECT)**

Lets you adjust the “presence” of the current surround effect.

■ **Wall type (WALL)**

Lets you control the level of the high frequencies to alter the sonic character of your listening environment by simulating a softer (S) or harder (H) wall. The midpoint designates a neutral wall (made of wood).

■ **Reverberation (REVERB)**

Lets you control the spacing of the early reflections to simulate a sonically longer (L) or shorter (S) room. The midpoint (0) designates a standard room with no adjustment.

Adjusting the level parameters

The SP. LEVEL menu contains parameters that let you adjust the balance and speaker volumes of each speaker. The settings available in this menu are applied to all sound fields.

1 Press SET UP.

2 Press ← or → repeatedly to select “SP. LEVEL”.

3 Press ENTER (A/V amplifier or remote).

4 Press ← or → repeatedly to select the parameter you want to adjust.

5 Press ↑ or ↓ repeatedly to select the setting you want.

The setting is stored.

6 Press ENTER (A/V amplifier or remote).

See the table on page 73 for the speaker level parameters.

■ **Front balance (FRONT)**

Lets you adjust the balance between the front left and right speakers.

■ **Rear balance (REAR)**

Lets you adjust the balance between the rear left and right speakers.

■ **Rear level (REAR)**

Lets you adjust the level of the rear (left and right) speakers.

■ **Center level (CENTER)**

Lets you adjust the level of the center speaker.

■ **Subwoofer level (SUB W.)**

Lets you adjust the level of the subwoofer.

Notes

- When the center and rear speakers are set to “NO” in the speaker parameters (see page 14), you cannot adjust the rear balance, rear level, or center level.
- When the subwoofer is set to “NO” in the speaker parameters (see page 15), you cannot adjust the subwoofer level.
- If you press SET UP while adjusting parameters using OSD, the OSD turns off.

continued

Customizing sound fields (continued)

■ LFE (Low Frequency Effect) mix level (LFE)

Lets you attenuate the level of the LFE (Low Frequency Effect) channel output from the subwoofer without effecting the level of the bass frequencies sent to the subwoofer from the front, center or rear channels via the Dolby Digital bass redirection circuitry.

- “0 dB” outputs the full LFE signal at the mix level determined by the recording engineer.
- “MUTING” mutes the sound of the LFE channel from the subwoofer. However, the low frequency sounds of the front, center, or rear speakers are output from the subwoofer according to the settings made for each speaker in the speaker setup (page 14).

■ Dynamic range compressor (D.COMP.)

Lets you compress the dynamic range of the sound track. This may be useful when you want to watch movies at low volumes late at night.

- “OFF” reproduces the sound track with no compression.
- “STD” reproduces the sound track with the dynamic range intended by the recording engineer.
- “0.1” – “0.9” allow you to compress the dynamic range in small steps to achieve the sound you desire.
- “MAX” provides a dramatic compression of the dynamic range.

Note

Dynamic range compression is possible with Dolby Digital sources only.

Adjusting the equalizer

The EQ menu lets you adjust the equalization (low, mid, and high frequencies) of the front speakers. The equalizer settings are stored individually for each sound field.

1 Start playing a program source encoded with multi channel surround sound, then select a sound field.

When the selected sound field contains adjustable equalizer parameters, the EQ button lights up.

2 When the EQ button lights up, press EQ.

The button starts blinking and the first parameter is displayed.

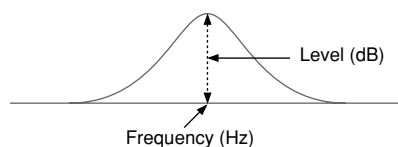
3 Press ← or → repeatedly to select the parameter (gain (dB) or frequency (Hz)) you want to adjust.

4 Press ↑ or ↓ repeatedly to select the setting you want.

The setting is stored.

5 Press ENTER (A/V amplifier or remote).

The EQ button lights up. See the table on page 73 for the equalizer parameters.



To turn on/off the equalizer

Press EQ ON/OFF. The EQ indicator in the display lights up when the equalizer is turned on. When you adjust the equalizer using the EQ parameters, the settings are stored separately for each sound field and can be reproduced whenever you turn on the equalizer.

■ **Front speaker bass (BASS)
(Gain/Frequency)**

Lets you adjust the gain and frequency of bass.

■ **Front speaker midrange (MID)
(Gain/Frequency)**

Lets you adjust the gain and frequency of midrange.

■ **Front speaker treble (TREB)
(Gain/Frequency)**

Lets you adjust the gain and frequency of treble.

Resetting customized sound fields to the factory settings

To reset the settings of a customized sound field

- 1** Turn FILE SELECT (or press FILE SELECT +/- on the remote) to select the sound field you want to reset the settings.
- 2** Press SET UP.
- 3** Press ← or → repeatedly to select “RESET MENU”.
- 4** Press ENTER (A/V amplifier or remote).
- 5** Press ← or → repeatedly to select “CUR. F. RESET”.
- 6** Press ENTER (A/V amplifier or remote) again.
All the surround, equalizer, and speaker level parameters of the selected sound field are reset to the factory settings.

To cancel
Press SET UP.

To reset the settings of all the customized sound fields

- 1** Press SET UP.
- 2** Press ← or → repeatedly to select “RESET MENU”.
- 3** Press ENTER (A/V amplifier or remote).
- 4** Press ← or → repeatedly to select “ALL F. RESET”.
- 5** Press ENTER (A/V amplifier or remote) again.
All the surround, equalizer, and speaker level parameters are reset to the factory settings.

To cancel
Press SET UP.

Other Features

Changing the spectrum analyzer display

Press **SPECTRUM ANALYZER** on the remote (or press and hold **DISPLAY** on the unit for more than 2 seconds).

Each time you press the button, the display changes as follows:

SPECTRUM ON ↔ SPECTRUM OFF

To adjust the brightness of the display

- 1 Press **SET UP**.
- 2 Press **←** or **→** repeatedly to select "DIMMER".
- 3 Press **ENTER** (A/V amplifier or remote).
- 4 Press **↑** or **↓** repeatedly to select the setting you want.
The setting is stored.
- 5 Press **ENTER** (A/V amplifier or remote).

Singing along: Karaoke

(Except for North American and European models)

You can sing along with any disc or tape by turning down the singer's voice. You need to connect an optional microphone.

- 1 Turn **MIC LEVEL** to **MIN** to turn down the microphone volume.
- 2 Connect an optional microphone to **MIC** jack.

3 Press **KARAOKE PON** on the remote.

Each time you press the button, the display changes cyclically as follows:

KARAOKE PON → MPX R →
MPX L → Effect status*

* KARAOKE PON is cancelled.

To sing karaoke by decreasing the vocal level of a VIDEO CD/CD or a tape, select "KARAOKE PON".

To sing karaoke of multiplex CD, select "MPX R" or "MPX L".

4 Start playing the music and adjust the volume.

5 Adjust the microphone volume by turning **MIC LEVEL**.

To	Do this
Use VIDEO CDs	Turn on your TV and select the video input.
Cancel karaoke mode	Turn MIC LEVEL to the leftmost position, disconnect the microphone from MIC jack, then press KARAOKE PON on the remote repeatedly until "🎤" disappears.

After you have finished

Turn **MIC LEVEL** to **MIN** and disconnect the microphone from **MIC** jack, then press **KARAOKE PON** on the remote repeatedly until "🎤" indicator disappears.

Notes

- With some songs, vocals may not be canceled when you select “KARAOKE PON”.
- If you recall a sound effect, the karaoke mode is canceled.
- The sound effect is canceled when “KARAOKE PON”, “MPX R”, or “MPX L” is selected. When the karaoke effect is canceled, the sound effect before entering the karaoke effect is applied again.
- The instrumental sound may be reduced as well as the singer’s voice when the sound is recorded in monaural.
- The singer’s voice may not be reduced when:
 - only a few instruments are playing.
 - a duet is being played.
 - the source has strong echoes or chorus.
 - the singer’s voice deviates from the center.
 - the voice on the source is singing in high soprano or tenor.

Mixing and recording sound

- 1 Do the procedure for “Singing along” (steps 1 through 5). Then, load a recordable tape in deck B.**
- 2 Turn FUNCTION to select the source you want to record (e.g. DVD).**
- 3 Press REC PAUSE/START.**
Deck B stands by for recording.
- 4 Press DIRECTION repeatedly to select \rightleftarrows to record on one side. Select \leftrightarrow (or RELAY) to record on both sides.**
- 5 Press REC PAUSE/START.**
Recording starts.
- 6 Press \blacktriangleright SELECT or \blacktriangleright (deck A) to start playing the source to be recorded.**
Start singing along with the music.

To stop recording

Press \blacksquare (DVD/VIDEO CD/CD or deck B).

Tips

- If acoustic feedback (howling) occurs, move the microphone away from the speakers or change the direction of the microphone.
- If you want to record your voice through the microphone only, you can do so by selecting the DVD function and not playing the disc.
- When high level sound signals are input, the unit automatically adjusts the recording level to prevent distortion of the recorded sound signal (Auto Level Control Function).

Falling asleep to music

— Sleep Timer

You can set the system to turn off at a preset time, so you can fall asleep to music.

Press SLEEP on the remote.

Each time you press the button, the minute display (the turn-off time) changes as follows:

OFF → AUTO* → 90min → 80min → 70min → ... → 10min

* The power turns off when the current CD or tape finishes playback (for up to 100 minutes).

To	Press
Check the remaining time	SLEEP once.
Change the time to turn off	SLEEP repeatedly to select the time you want.
Cancel the Sleep Timer	SLEEP repeatedly until “SLEEP OFF” appears.

Waking up to music

— Daily Timer

You can wake up to music at a preset time every day. Make sure you have set the clock (see “Setting the time” on page 17).

1 Prepare the music source you want to play.

- DVD/VIDEO CD/CD: Load a DVD/VIDEO CD/CD.
- Tape: Load a tape with the side you want to play facing forward.
- Radio: Tune in the preset station you want (see “Listening to the radio” on page 42).

2 Adjust the volume.

3 Press CLOCK/TIMER (or CLOCK/TIMER SET on the remote).

“DAILY1 SET” appears.

4 Press ↑ or ↓ repeatedly to select “DAILY 1 (or 2)”, then press ENTER (A/V amplifier or remote).

“ON” appears and the hour indication flashes.

5 Set the time to start playback.

Press ↑ or ↓ repeatedly to set the hour, then press ENTER (A/V amplifier or remote).

The minute indication flashes.

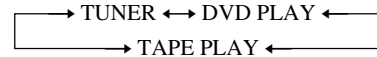
Press ↑ or ↓ repeatedly to set the minutes, then press ENTER (A/V amplifier or remote).

The hour indication flashes again.

6 Set the time to stop playback following step 5.

7 Press ↑ or ↓ repeatedly until the music source you want appears.

The indications change as follows:



8 Press ENTER (A/V amplifier or remote).

The type of timer (“DAILY 1” or “DAILY 2”), followed by the start time, stop time and the music source, appears, then the original display appears.

9 Turn off the power.

To	Do this
Check the setting	Press TIMER SELECT (or CLOCK/TIMER SELECT on the remote) and press ↑ or ↓ repeatedly to select the respective mode (“DAILY 1” or “DAILY 2”), then press ENTER (A/V amplifier or remote).
Change the setting	Start over from step 1.
Cancel the Daily Timer	Press TIMER SELECT (or CLOCK/TIMER SELECT on the remote) and press ↑ or ↓ repeatedly to select “TIMER OFF”, then press ENTER (A/V amplifier or remote).

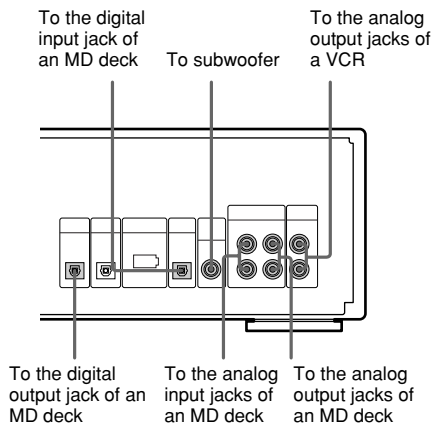
Notes

- If the power is on at the preset time, the Daily Timer does not work.
- When you use the Sleep Timer, the Daily Timer will not turn on the system until the Sleep Timer turns it off.
- The power turns on 15 seconds before the preset time.

Hooking Up the Optional Components

Connecting audio components

To connect audio components, connect to the jacks on the rear panel of the tuner.



Notes

- Make sure to match the color of the plugs and the connectors.
- Digital signals are output from DIGITAL OUT jack during CD or DIGITAL function only. Besides, the sound output from the DIGITAL OUT jack is not affected by the sound adjustment.
- This unit is not compatible with 96 kHz sampling frequencies and SACD format.

To	Do This
Make a digital recording from CD to MD	Connect an optional optical cable.
Listen to the digital sound of a connected MD deck	Turn FUNCTION or press DIGITAL to select "DIGITAL".
Listen to the analog sound of a connected MD deck	Turn FUNCTION to select "MD" (or press MD on the remote).
Listen to the analog sound of a connected VCR	Turn FUNCTION to select "VIDEO" (or press VIDEO on the remote).

Tip

When you remove the optical cover, keep it for future use.

Additional Information

Precautions

On operating voltage

Before operating the unit, check that the operating voltage of your unit is identical with the voltage of your local power supply.

On safety

- The unit is not disconnected from the AC power source (mains) as long as it is connected to the wall outlet, even if the unit itself has been turned off.
- Unplug the unit from the wall outlet (mains) if it is not to be used for an extended period of time. To disconnect the cord (mains lead), pull it out by the plug. Never pull the cord itself.
- Should any solid object or liquid fall into the component, unplug the unit and have the component checked by qualified personnel before operating it any further.
- The AC power cord must be changed only at a qualified service shop.

On placement

- Do not place the unit in an inclined position.
- Do not place the unit in locations where it is:
 - extremely hot or cold.
 - dusty or dirty.
 - very humid.
 - vibrating.
 - subject to direct sunlight.
- Use caution when placing the unit or speakers on surfaces that have been specially treated (with wax, oil, polish, etc.) as staining or discoloration of the surface may result.

On heat buildup

- Although the unit heats up during operation, this is not a malfunction.
- Place the unit in a location with adequate ventilation to prevent heat build-up in the unit.

If you continuously use this unit at a large volume, the cabinet temperature of the top, side and bottom rises considerably. To avoid burning yourself, do not touch the cabinet.

To prevent a malfunction, do not cover the ventilation hole for the cooling fan.

On operation

- If the unit is brought directly from a cold to a warm location, or is placed in a very damp room, moisture may condense on the lens inside the CD player. Should this occur, the unit will not operate properly. Remove the CD and leave the unit turned on for about an hour until the moisture evaporates.
- When you move the unit, take out any discs.

If you have any questions or problems concerning the unit, please consult your nearest Sony dealer.

Notes on discs

- Before playing, clean the disc with a cleaning cloth. Wipe the disc from the center out.
- Do not use solvents such as benzene, thinner, commercially available cleaners or anti-static spray intended for vinyl LPs.
- Do not expose the disc to direct sunlight or heat sources such as hot air ducts, nor leave it in a car parked in direct sunlight.
- Do not use discs encircled with a protection ring. This may cause a malfunction to the system.
- When using discs that have glue or similar tacky substance on the label side of the disc or that used a special ink when the label was printed, there is a chance that the disc or label may become attached to parts inside this unit. When this occurs, it may not be possible to remove the disc, and may also cause this unit to malfunction. Be sure to check that the label side of the disc is not sticky before using. The following types of disc should not be used:
 - Rental or used discs with attached seals where the glue extends beyond the seal. The perimeter of the seal on the disc is tacky.
 - Discs that have labels printed using a special ink that feels tacky when touched.
- Discs with non-standard shapes (e.g., heart, square, star) cannot be played on this unit. Attempting to do so may damage the unit. Do not use such discs.

Music discs encoded with copyright protection technologies

This product is designed to playback discs that conform to the Compact Disc (CD) standard. Recently, various music discs encoded with copyright protection technologies are marketed by some record companies. Please be aware that among those discs, there are some that do not conform to the CD standard and may not be playable by this product.

Note on CD-R/CD-RW playback

Discs recorded on CD-R/CD-RW drives may not be played back because of scratches, dirt, recording condition or the drive's characteristics. Besides, the discs, which are not yet finalized at the end of recording, cannot be played back.

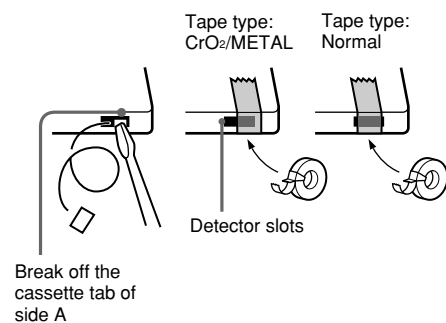
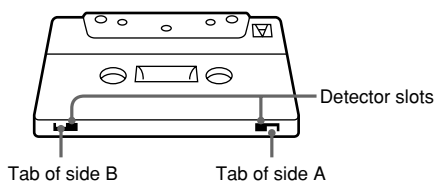
Cleaning the cabinet

Use a soft cloth slightly moistened with mild detergent solution.

To save a tape permanently

To prevent a tape from being accidentally recorded over, break off the cassette tab from side A or B as illustrated.

If you later want to reuse the tape for recording, cover the broken tab with adhesive tape. However, be careful not to cover the detector slots which allow the tape player to automatically detect the type of tape.



Break off the cassette tab of side A

Before placing a cassette in the tape deck

Take up any slack in the tape. Otherwise the tape may get entangled in the parts of the tape deck and become damaged.

When using a tape longer than 90 minutes

The tape is very elastic. Do not change the tape operations such as play, stop, and fast-winding, etc. frequently. The tape may get entangled in the tape deck.

Cleaning the tape heads

Clean the tape heads after every 10 hours of use.

Make sure to clean the tape heads before you start an important recording or after playing an old tape. Use a separately sold dry-type or wet-type cleaning cassette. For details, refer to the instructions of the cleaning cassette.

Demagnetizing the tape heads

Demagnetize the tape heads and the metal parts that have contact with the tape every 20 to 30 hours of use with a separately sold demagnetizing cassette. For details, refer to the instructions of the demagnetizing cassette.

In case color irregularity is observed on nearby a TV screen

With the magnetically shielded type of speaker system, the speakers can be installed near a TV set. However, color irregularity may still be observed on the TV screen depending on the type of your TV set.

If color irregularity is observed...

Turn off the TV set once, then turn it on after 15 to 30 minutes.

If color irregularity is observed again...

Place the speakers farther away from the TV set.

Troubleshooting

If you run into any problem using this unit, use the following check list.

First, check that the power cord is connected firmly and the speakers are connected correctly and firmly.

Should any problem persist, consult your nearest Sony dealer. When bringing the system in for repairs, be sure to bring in the entire system. This product is a system product, and the entire system is necessary to determine the location requiring to repair.

General

The display starts flashing as soon as you plug in the power cord even though you haven't turned on the power.

- The demonstration mode started. Press I/⏻ (see step 10 on page 12).

The clock setting/timer is canceled.

- The power cord is disconnected or a power failure occurs. Redo "Setting the time" (page 17). If you have set the timer, redo "Waking up to music" (page 56) and/or "Timer-recording radio programs" (page 47).

continued

Troubleshooting (continued)

The radio presetting is canceled.

- The power cord is disconnected or a power failure occurs for longer than half a day. Redo "Presetting radio stations" (page 42).

There is no sound.

- Turn VOLUME clockwise.
- The headphones are connected.
- Insert only the stripped portion of the speaker cord into the SPEAKER jack. Inserting the vinyl portion of the speaker cord will obstruct the speaker connections.
- The protective device on the amplifier has been activated because of a short circuit. ("PROTECT" and "PUSH POWER" flash alternately.) Turn off the power, eliminate the short-circuit problem and turn on the power again.
- The system is in pause mode or in Slow-motion Play mode. Press ► SELECT to return to normal play mode.
- There is no audio output during Timer-recording.

There is no sound when playing a DVD, a VIDEO CD or a CD.

- Check that the optical cable is connected correctly and securely (page 11).

The sound loses stereo effect when you play a VIDEO CD, or a CD.

- Set "AUDIO" to "STEREO" in the Control Menu (page 34).
- Make sure you connect the system appropriately.

The surround effect is difficult to hear when you are playing a Dolby Digital or MPEG audio sound track.

- Make sure the sound field function is on (page 48).
- Check the speaker connections and settings (pages 14, 22).
- Depending on the DVD, the output signal may not be the entire 5.1 channel but monaural or stereo even if the sound track is recorded in Dolby Digital or MPEG audio format.

There is severe hum or noise.

- A TV or VCR is placed too close to the unit. Move the unit away from the TV or VCR.

"--:--" lights up in the display.

- A power interruption occurred. Set the clock and timer settings again.

The timer does not function.

- Set the clock correctly.
- You cannot activate the Daily timer and the Timer-recording simultaneously.

"DAILY 1", "DAILY 2", or "REC SELECT" does not appear when you press TIMER SELECT (or CLOCK/TIMER SELECT on the remote).

- Set the timer correctly.
- Set the clock.

The remote does not function.

- There is an obstacle between the remote and the unit.
- The remote is not pointing in the direction of the unit's sensor.
- The batteries have run down. Replace the batteries.

There is acoustic feedback.

- Decrease the volume level.
- Move the microphone away from the speakers or change the direction of the microphone.

The color irregularity on a TV screen persists.

- Turn off the TV set once, then turn it on after 15 to 30 minutes. If the color irregularity still persists, place the speakers farther away from the TV set.

"PROTECT" and "PUSH POWER" appear alternately.

- A strong signal is input. Turn off the power, leave the system turned off for a while, then turn on the power again. If "PROTECT" and "PUSH POWER" still appear alternately, check the speaker cords.

"CANNOT USE" appears in the display when you try to operate the system while recording.

- You cannot do the operation while recording.

Speakers

Sound comes from only one channel or unbalanced left and right volume.

- Check the speaker connection and speaker placement.
- The source being played back is monaural.
- Adjust the balance parameters (pages 23, 51).

The sound comes from the center speaker only.

- Depending on the disc, the sound may come from the center speaker only.

There is no sound from the center speaker.

- Set the center speaker level to the appropriate level.
- Make sure the center speaker selection parameter in the "SP. SET UP" menu is set to "YES".
- Select a sound field containing the word "CINEMA" or "VIRTUAL".

There is no sound from the rear speakers.

- Set the rear speakers level to the appropriate level.
- Make sure the rear speakers selection parameter in the "SP. SET UP" menu is set to "YES".
- Select a sound field containing the word "CINEMA" or "VIRTUAL".
- The software being played back has limited sound effects. Check the volume with the test tone.

No sound or only a very low-level sound is heard from the rear speakers.

- Make sure the sound field function is on (page 48).

Sound lacks bass.

- Check that the speaker's + and – terminals are connected correctly.
-

DVD/VIDEO CD/CD Player

The disc tray does not close.

- The disc is not placed properly.

The disc does not play.

- The disc is not lying flat in the disc tray.
- The disc is dirty (see page 58).
- The disc is inserted label side down.
- Moisture condensation has built up.
- The system cannot play CD-ROMs, etc. (page 6).
- The region code on the DVD does not match the system.

The disc does not start playback from the beginning.

- Program Play, Shuffle Play, or Repeat Play has been selected (pages 25, 28, 30). Press CLEAR to cancel these functions before playing a disc.
- Resume Play has been selected. When the playback is stopped, press ■ (DVD/VIDEO CD/CD), then start DVD playback (page 30).
- The title, DVD or PBC menu automatically appears on the screen.

Playback starts automatically.

- The DVD features an auto playback function.

Playback stops automatically.

- Some discs may contain an auto pause signal. While playing such a disc, the playback stops at the auto pause signal.

You cannot perform some functions such as Stop, Search, Slow-motion Play, Repeat Play, Shuffle Play, or Program Play.

- Depending on the disc, you may not be able to do some of the operations above. Refer to the operating instructions supplied with the disc.
-

continued

Troubleshooting (continued)

Picture

There is no picture.

- Turn FUNCTION to select "DVD".
 - Check that the system is connected securely.
 - The video cable is damaged. Replace it with a new one.
 - Make sure you connect the system to the video input jack of your TV (page 12).
 - Make sure you turn on the TV.
 - Make sure you select the video input on the TV so that you can view the pictures from the system.
-

The picture noise appears.

- Clean the disc.
 - If video from your DVD player has to go through your VCR to get to your TV, the copy-protection applied to some DVD programs could affect picture quality. If you still experience problems after checking your connections, please try connecting your DVD player directly to your TV's S video-input, if your TV is equipped with this input (page 12).
 - Except for Pan American and European models, the color system is different. Set the color system to match your TV (pages 12, 21).
-

The aspect ratio of the screen cannot be changed even though you set "TV TYPE" in "SCREEN SETUP" in the Setup Display when you play a wide picture.

- The aspect ratio is fixed on your DVD.
 - If you connect the system with the S-video cable, connect directly to the TV. Otherwise, you may not change the aspect ratio.
 - Depending on the TV, you may not change the aspect ratio.
-

Messages do not appear on the screen in the language you want.

- Select the language you want for the on-screen display in "OSD" under "LANGUAGE SETUP" in the Setup Display (page 19).
-

The language for the sound track cannot be changed.

- Multilingual tracks are not recorded on the DVD being played.
 - The DVD prohibits changing the language for the sound track.
-

The subtitle language cannot be changed.

- Multilingual subtitles are not recorded on the DVD being played.
 - The DVD prohibits changing the subtitles.
-

The subtitle cannot be turned off.

- The DVD prohibits turning off subtitles.
-

The angles cannot be changed.

- Multi-angles are not recorded on the DVD being played. The angle can be changed only when the "ANGLE" indicator lights up on the front panel display.
 - The DVD prohibits changing the angles.
-

A 5-character service number is displayed on the screen and on the front panel display.

- The self-diagnosis function is activated. (See the table on page 63.)
-

The disc tray does not open and "LOCKED" appears on the front panel display.

- Contact your Sony dealer or local authorized Sony service facility.
-

Cassette Deck

The tape does not record.

- The tab has been removed from the cassette (see "To save a tape permanently" on page 59).
- The tape has reeled to the end.

The tape does not record nor play, or there is a decrease in sound level.

- The heads are dirty (see "Cleaning the tape heads" on page 59).
- The record/playback heads are magnetized (see "Demagnetizing the tape heads" on page 59).

The tape does not erase completely.

- The record/playback heads are magnetized (see "Demagnetizing the tape heads" on page 59).

There is excessive wow or flutter, or the sound drops out.

- The capstans or pinch rollers are dirty (see "Cleaning the tape heads" on page 59).

Noise increases, or the high frequencies are erased.

- The record/playback heads are magnetized (see "Demagnetizing the tape heads" on page 59).

After pressing ► (◀) or ▲, there is a mechanical noise, "EJECT" appears in the display, and the unit enters standby mode automatically.

- The cassette tape has not inserted correctly.

Tuner

There is severe hum or noise ("TUNED" or "STEREO" flashes in the display).

- Adjust the antenna.
- The signal is too weak. Connect an external antenna.

A stereo FM program cannot be received in stereo.

- Press STEREO/MONO so that "MONO" disappears.

If other troubles not described above occur, reset the system as follows:

1 While holding down DIGITAL, press DISPLAY.

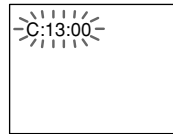
2 Press I/⏻ to turn on the power.

The system is reset to the factory settings except for DVD settings. All the settings other than DVD settings you made, such as the preset stations, clock, and timer are cleared. You should set them again.

Self-diagnosis function

(When letters/numbers appear in the display)

When the self-diagnosis function is activated to prevent the system from malfunctioning, a five-character service number (e.g., C 13 00) with a combination of a letter and digits appears on the screen. In this case, check the following table.



First three characters of the service number	Cause and/or Corrective Action
C 13	The disc is dirty ➔ Clean the disc with a soft cloth (page 58).
C 31	The disc is not inserted correctly. ➔ Re-insert the disc correctly.
E XX (XX is a number)	To prevent a malfunction, the system has performed the self-diagnosis function. ➔ Contact your nearest Sony dealer or local authorized Sony service facility and give the 5-character service number. Example: E 61 10

Specifications

AUDIO POWER SPECIFICATIONS: (USA model only)

POWER OUTPUT AND TOTAL HARMONIC DISTORTION

with 6 ohm loads both channels driven, from 120 Hz – 10 kHz; rates 120 watts per channel minimum RMS power, with no more than 10% total harmonic distortion from 250 milliwatts to rated output.

Continuous RMS power output	
Center speaker:	40 watts
Rear speakers:	40 + 40 watts (8 ohms at 1 kHz, 10% THD)

Amplifier section

Canadian model:

Front Speaker:	
Continuous RMS power output (reference)	120 + 120 watts (6 ohms at 1 kHz, 10% THD)
Total harmonic distortion	less than 0.07% (6 ohms at 1 kHz, 75 W)

Center Speaker:

Continuous RMS power output (reference)	40 watts (8 ohms at 1 kHz, 10% THD)
---	--

Rear Speaker:

Continuous RMS power output (reference)	40 + 40 watts (8 ohms at 1 kHz, 10% THD)
---	---

European model:

Front Speaker:	
DIN power output (rated)	95 + 95 watts (6 ohms at 1 kHz, DIN)
Continuous RMS power output (reference)	120 + 120 watts (6 ohms at 1 kHz, 10% THD)
Music power output (reference)	200 + 200 watts (6 ohms at 1 kHz, 10% THD)

Center Speaker:

DIN power output (rated)	30 watts (8 ohms at 1 kHz, DIN)
Continuous RMS power output (reference)	40 watts (8 ohms at 1 kHz, 10% THD)
Music power output (reference)	75 watts (8 ohms at 1 kHz, 10% THD)

Rear Speaker:

DIN power output (rated)	30 + 30 watts (8 ohms at 1 kHz, DIN)
Continuous RMS power output (reference)	40 + 40 watts (8 ohms at 1 kHz, 10% THD)
Music power output (reference)	75 + 75 watts (8 ohms at 1 kHz, 10% THD)

Other models:

Front Speaker: MHC-S90D

The following measured at AC 127, 220, 240 V, 50/60 Hz (Saudi Arabian model only)

The following measured at AC 120, 220, 240 V, 50/60 Hz (except for Saudi Arabian model)

DIN power output (rated)	110 + 110 watts (6 ohms at 1 kHz, DIN)
Continuous RMS power output (reference)	140 + 140 watts (6 ohms at 1 kHz, 10% THD)

MHC-S9D

The following measured at AC 120, 220, 240 V, 50/60 Hz

DIN power output (rated)	95 + 95 watts (6 ohms at 1 kHz, DIN)
Continuous RMS power output (reference)	120 + 120 watts (6 ohms at 1 kHz, 10% THD)

Center Speaker:

DIN power output (rated)	30 watts (8 ohms at 1 kHz, DIN)
Continuous RMS power output (reference)	40 watts (8 ohms at 1 kHz, 10% THD)

Rear Speaker:

DIN power output (rated)	30 + 30 watts (8 ohms at 1 kHz, DIN)
Continuous RMS power output (reference)	40 + 40 watts (8 ohms at 1 kHz, 10% THD)

Inputs	
VIDEO (AUDIO) IN: (phono jacks)	voltage 250 mV, impedance 47 kilohms
MD IN: (phono jacks)	voltage 450 mV, impedance 47 kilohms
OPTICAL IN: (Square optical connector jacks, rear panel)	
MIC: (Except for North American and European models) (phone jack)	sensitivity 1 mV, impedance 10 kilohms
Outputs	
MD OUT: (phono jacks)	voltage 250 mV impedance 1 kilohms
VIDEO OUT: (phono jack)	max. output level 1 Vp-p, unbalanced, Sync negative, load impedance 75 ohms
S-VIDEO OUT: (4-pin/mini-DIN jack)	Y: 1 Vp-p, unbalanced, Sync negative, C: 0.286Vp-p, load impedance 75 ohms accepts headphones of 8 ohms or more
PHONES: (stereo mini jack)	accepts impedance of 6 to 16 ohms
FRONT SPEAKER:	accepts impedance of 8 to 16 ohms
REAR SPEAKER:	accepts impedance of 8 to 16 ohms
CENTER SPEAKER:	accepts impedance of 8 to 16 ohms
SUB WOOFER OUT:	Voltage 1 V, impedance 1 kilohms
DVD player section	
Laser	Semiconductor laser ($\lambda=650$ nm/780 nm) Emission duration: continuous
Frequency response	DVD (PCM 48 kHz): 2 Hz – 22 kHz = (± 1 dB) CD: 2 Hz – 20 kHz = (± 1 dB)
Signal-to-noise ratio	More than 90 dB
Dynamic range	More than 90 dB
Video color system format	NTSC, PAL
OPTICAL OUT (Square optical connector jack, rear panel)	

Tape player section

Recording system	4-track 2-channel stereo
Frequency response (DOLBY NR OFF)	60 – 13,000 Hz (± 3 dB), using Sony TYPE I cassette, 60 – 14,000 Hz (± 3 dB), using Sony TYPE II cassette
Wow and flutter	$\pm 0.15\%$ W.Peak (IEC) 0.1% W.RMS (NAB) $\pm 0.2\%$ W.Peak (DIN)

Tuner section

FM stereo, FM/AM superheterodyne tuner

FM tuner section

Tuning range	87.5 – 108.0 MHz
Antenna	FM lead antenna
Antenna terminals	75 ohm unbalanced
Intermediate frequency	10.7 MHz

AM tuner section

Tuning range	530 – 1,710 kHz
Pan American model:	531 – 1,710 kHz (with the interval set at 10 kHz)
European and Saudi Arabian models:	531 – 1,602 kHz (with the interval set at 9 kHz)
Other models:	531 – 1,602 kHz (with the interval set at 9 kHz) 530 – 1,710 kHz (with the interval set at 10 kHz)
Antenna	AM loop antenna
Antenna terminals	External antenna terminal
Intermediate frequency	450 kHz

continued

Specifications (continued)

Speaker

Front speaker SS-S90D for MHC-S90D

Front speaker SS-S9 for MHC-S9D

Speaker system	3-way, 3-unit, bass-reflex type, magnetically shielded type
Speaker units	
Woofer:	15 cm, cone type
Subwoofer:	15 cm, cone type
Tweeter:	2.8 cm, dome type
Nominal impedance	6 ohms
Dimensions (w/h/d)	Approx. 235 x 470 x 265 mm
Mass	Approx. 7.3 kg net per speaker

Rear speaker SS-RS280 for MHC-S90D

Rear speaker SS-RS270 for MHC-S9D

Speaker system	1-way, 1-unit, bass-reflex type
Speaker units	
Full-range:	8 cm, cone type
Nominal impedance	8 ohms
Dimensions (w/h/d)	Approx. 180 x 95 x 100 mm
Mass	Approx. 0.65 kg net per speaker

Center speaker SS-CT280 for MHC-S90D

Center speaker SS-CT270 for MHC-S9D

Speaker system	1-way, 2-unit, bass-reflex type, magnetically shielded type
Speaker units	
Full-range:	8 cm, cone type
Nominal impedance	8 ohms
Dimensions (w/h/d)	Approx. 225 x 95 x 100 mm
Mass	Approx. 1.2 kg net

General

Power requirements	
North American model:	120 V AC, 60 Hz
European model:	230 V AC, 50/60 Hz
Australian model:	230 – 240 V AC, 50/60 Hz
Mexican model:	120 V AC, 60 Hz
Korean model:	220 V AC, 60 Hz
Thailand model:	220 V AC, 50/60 Hz
Saudi Arabian model: (MHC-S90D)	120 – 127 V, 220 V or, 230 – 240 V AC, 50/60 Hz Adjustable with voltage selector
Other models:	120 V, 220 V or 230 – 240 V AC, 50/60 Hz Adjustable with voltage selector

Power consumption

North American model: MHC-S9D	350 watts 0.6 watts (at the Power Saving Mode)
European model: MHC-S9D	300 watts 0.6 watts (at the Power Saving Mode)
Other models: MHC-S90D MHC-S9D	330 watts 300 watts

Dimensions (w/h/d)

TA-S90D/S9D:	Approx. 280 x 128 x 350 mm
ST-S90D/S9:	Approx. 280 x 108 x 340 mm
DVP-S90D/S9:	Approx. 280 x 108 x 330 mm
TC-S90D/S9:	Approx. 280 x 128 x 330 mm

Mass

TA-S90D/S9D:	Approx. 7.7 kg
ST-S90D/S9:	Approx. 2.1 kg
DVP-S90D/S9:	Approx. 2.9 kg
TC-S90D/S9:	Approx. 2.4 kg

Supplied accessories:	AM loop antenna (1) FM lead antenna (1) Remote commander (1) Batteries (2) Speaker cords (5) Video cable (1) Optical cable (1) Center and rear speaker pads (12)
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Design and specifications are subject to change
without notice.

Glossary

Bit Rate

Value indicating the amount of video data compressed in a DVD per second. The unit is Mbps (Mega bit per second). 1 Mbps indicates that the data per second is 1,000,000 bits. The higher the bit rate is, the larger the amount of data. However, this does not always mean that you can get higher quality pictures.

Chapter

Sections of a picture or a music piece on a DVD that are smaller than titles. A title is composed of several chapters. Each chapter is assigned a chapter number enabling you to locate the chapter you want.

Digital Cinema Sound (DCS)

This is the generic name of the surround sound produced by digital signal processing technology developed by Sony. Unlike previous surround sound fields mainly directed at the reproduction of music, Digital Cinema Sound is designed specifically for the enjoyment of movies.

Dolby Digital

This sound format for movie theaters is more advanced than Dolby Pro Logic Surround. In this format, the rear speakers output stereo sound with an expanded frequency range and a subwoofer channel for deep bass is independently provided. This format is also called "5.1" because the subwoofer channel is counted as 0.1 channel (since it functions only when a deep bass effect is needed). All six channels in this format are recorded separately to realize superior channel separation. Furthermore, since all the signals are processed digitally, less signal degradation occurs.

Dolby Pro Logic Surround

As one method of decoding Dolby Surround, Dolby Pro Logic Surround produces four channels from two-channel sound. Compared with the former Dolby Surround system, Dolby Pro Logic Surround reproduces left-to-right panning more naturally and localizes sounds more precisely. To take full advantage of Dolby Pro Logic Surround, you should have one pair of rear speakers and a centre speaker. The rear speakers output monaural sound.

DTS

Digital audio compression technology that the Digital Theater Systems, Inc. developed. This technology conforms to 5.1-channel surround. The rear channel is stereo and there is discrete subwoofer channel in this format. DTS provides the same 5.1 discrete channels of high quality digital audio. The good channel separation is realized because the all channel data is recorded discrete and processed in digital.

DVD

A disc that contains up to 8 hours of moving pictures even though its diameter is the same as a CD.

The data capacity of a single-layer and single-sided DVD, at 4.7 GB (Giga Byte), is 7 times that of a CD. Furthermore, the data capacity of a dual-layer and single-sided DVD is 8.5 GB, a single-layer and double-sided DVD 9.4 GB, and a dual-layer and double-sided DVD 17 GB.

The picture data uses the MPEG 2 format, one of the worldwide standards of digital compression technology. The picture data is compressed to about 1/40 of its original size. The DVD also uses the variable rate coding technology that changes the data to be allocated according to the status of the picture.

The audio data is recorded in Dolby Digital as well as in PCM, allowing you to enjoy more real audio presence. Furthermore, various advanced functions such as the multi-angle, multilingual, and Parental Control functions are provided with the DVD.

continued

Glossary (continued)

Index (CD) / Video Index (VIDEO CD)

A number that divides a track into sections to easily locate the point you want on a VIDEO CD or a CD. Depending on the disc, no indexes may be recorded.

Multi-angle function

Various angles, or viewpoints of the video camera, for a scene are recorded on some DVDs.

Multilingual function

Several languages for the sound or subtitles in a picture are recorded on some DVDs.


Parental Control

A function of the DVD to limit playback of the disc by the age of the users according to the limitation level in each country. The limitation varies from disc to disc; when it is activated, playback is completely prohibited, violent scenes are skipped or replaced with other scenes and so on.

Playback Control (PBC)

Signals encoded on VIDEO CDs (Version 2.0) to control playback. By using menu screens recorded on VIDEO CDs with PBC functions, you can enjoy playing simple interactive programs, programs with search functions, and so on.

Region Code

This system is used to protect copyrights. A region number is allocated on each DVD system or DVD disc according to the sales region. Each region code is shown on the system as well as on the disc packaging. The system can play the discs that match its region code. The system can also play discs with the “” mark. Even when the region code is not shown on the DVD, the region limit may still be activated.

Scene

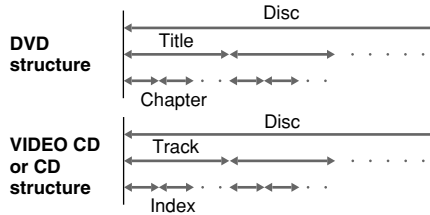
On a VIDEO CD with PBC functions (page 27), the menu screens, moving pictures, and still pictures are divided into sections called “scenes”. Each scene is assigned a scene number enabling you to locate the scene you want.

Title

The longest sections of a picture or a music piece on a DVD; a movie, etc., for a picture piece on video software; or an album, etc., for a music piece on an audio software. Each title is assigned a title number enabling you to locate the title you want.

Track

Sections of a picture or a music piece on a CD or VIDEO CD. Each track is assigned a track number enabling you to locate the track you want.



VIDEO CD

A compact disc that contains moving pictures. The picture data uses the MPEG 1 format, one of the worldwide standards of digital compression technology. The picture data is compressed to about 1/140 of its original size. Consequently, a 12 cm VIDEO CD can contain up to 74 minutes of moving pictures.

VIDEO CDs also contain compact audio data. Sounds outside the range of human hearing are compressed while the sounds we can hear are not compressed. VIDEO CDs can hold 6 times the audio information of conventional audio CDs.

There are 2 versions of VIDEO CDs.

- Version 1.1: You can play only moving pictures and sounds.
- Version 2.0: You can play high-resolution still pictures and enjoy PBC functions.

This system conforms to both versions.

Language code list

For details, see pages 19, 34 and 37.

The language spellings conform to the ISO 639: 1988 (E/F) standard.

Code	Language	Code	Language	Code	Language	Code	Language
1027	Afar	1186	Scots Gaelic	1350	Malayalam	1513	Siswati
1028	Abkhazian	1194	Galician	1352	Mongolian	1514	Sesotho
1032	Afrikaans	1196	Guarani	1353	Moldavian	1515	Sundanese
1039	Amharic	1203	Gujarati	1356	Marathi	1516	Swedish
1044	Arabic	1209	Hausa	1357	Malay	1517	Swahili
1045	Assamese	1217	Hindi	1358	Maltese	1521	Tamil
1051	Aymara	1226	Croatian	1363	Burmese	1525	Telugu
1052	Azerbaijani	1229	Hungarian	1365	Nauru	1527	Tajik
1053	Bashkir	1233	Armenian	1369	Nepali	1528	Thai
1057	Byelorussian	1235	Interlingua	1376	Dutch	1529	Tigrinya
1059	Bulgarian	1239	Interlingue	1379	Norwegian	1531	Turkmen
1060	Bihari	1245	Inupiak	1393	Occitan	1532	Tagalog
1061	Bislama	1248	Indonesian	1403	(Afan) Oromo	1534	Setswana
1066	Bengali; Bangla	1253	Icelandic	1408	Oriya	1535	Tonga
1067	Tibetan	1254	Italian	1417	Punjabi	1538	Turkish
1070	Breton	1257	Hebrew	1428	Polish	1539	Tsonga
1079	Catalan	1261	Japanese	1435	Pashto; Pushto	1540	Tatar
1093	Corsican	1269	Yiddish	1436	Portuguese	1543	Twi
1097	Czech	1283	Javanese	1463	Quechua	1557	Ukrainian
1103	Welsh	1287	Georgian	1481	Rhaeto-Romance	1564	Urdu
1105	Danish	1297	Kazakh	1482	Kirundi	1572	Uzbek
1109	German	1298	Greenlandic	1483	Romanian	1581	Vietnamese
1130	Bhutani	1299	Cambodian	1489	Russian	1587	Volapük
1142	Greek	1300	Kannada	1491	Kinyarwanda	1613	Wolof
1144	English	1301	Korean	1495	Sanskrit	1632	Xhosa
1145	Esperanto	1305	Kashmiri	1498	Sindhi	1665	Yoruba
1149	Spanish	1307	Kurdish	1501	Sangho	1684	Chinese
1150	Estonian	1311	Kirghiz	1502	Serbo-Croatian	1697	Zulu
1151	Basque	1313	Latin	1503	Singhalese	1703	Not specified
1157	Persian	1326	Lingala	1505	Slovak		
1165	Finnish	1327	Laothian	1506	Slovenian		
1166	Fiji	1332	Lithuanian	1507	Samoan		
1171	Faroese	1334	Latvian; Lettish	1508	Shona		
1174	French	1345	Malagasy	1509	Somali		
1181	Frisian	1347	Maori	1511	Albanian		
1183	Irish	1349	Macedonian	1512	Serbian		

Control Menu Item List

Control Menu Items	Function
TITLE (DVD only) SCENE (VIDEO CD in PBC Playback only) TRACK (VIDEO CD only)	Selects the title (DVD), the scene (VIDEO CD in PBC Playback), or the track (VIDEO CD) to be played.
CHAPTER (DVD only) INDEX (VIDEO CD only)	Selects the chapter (DVD) or the index (VIDEO CD) to be played.
TRACK (CD only)	Selects the track to be played.
INDEX (CD only)	Selects the index to be played.
TIME/TEXT	Checks the elapsed time and the remaining playback time. Input the time code for picture and music searching. Displays the DVD/CD text.
AUDIO	Changes the audio setting.
SUBTITLE (DVD only)	Displays the subtitles. Changes the subtitle language.
ANGLE (DVD only)	Changes the angle.
ONE/ALL DISCS	Plays one disc or all discs in the disc tray.
REPEAT	Plays the entire disc (all titles/all tracks) repeatedly or one title/chapter/track repeatedly.
ADVANCED (DVD only)	Checks the information (bit rate or layer) on the disc while playing a DVD.
CUSTOM PARENTAL CONTROL	Sets the disc to prohibit playback.
SETUP	CUSTOM Setup Adjusts the image and sound quality, Parental Control, and other various settings. RESET Returns the settings in "SETUP" to the default setting.

Tips

- Each time you press DVD DISPLAY, the Control Menu display changes cyclically as follows.
Control Menu display → "ADVANCED" display (Appears if you select any setting other than "OFF". See page 33.) → Control Menu display off
The Control Menu items differ depending on the disc.
- The Control Menu icon indicator lights in green when you select any item except for "OFF" ("REPEAT" only).
The "ANGLE" indicator lights in green only when the angles can be changed.

Setup Display Item List

You can set the following items in the Setup Display.

The order of the displayed items may be different from the actual display.

LANGUAGE

- OSD — (Select the language you want to use from the displayed language list.)
- DVD MENU — (Select the language you want to use from the displayed language list.)
- AUDIO — (Select the language you want to use from the displayed language list. When you select ORIGINAL, you can enjoy the language given priority on the disc.)
- SUBTITLE — (Select the language you want to use from the displayed language list. When you select AUDIO FOLLOW, the setting is automatically switched to the language selected in AUDIO.)

SCREEN

- TV TYPE —
 - 16:9
 - 4:3 LETTER BOX
 - 4:3 PAN SCAN
- SCREEN SAVER —
 - ON
 - OFF
- BACKGROUND —
 - JACKET PICTURE
 - GRAPHICS
 - BLUE
 - BLACK

CUSTOM

- COLOR SYSTEM* —
 - AUTO
 - PAL
 - NTSC
- PAUSE MODE —
 - AUTO
 - FRAME
- PARENTAL CONTROL —
 - LEVEL —
 - OFF
 - 8.
 - 7. NC17
 - 6. R
 - 5.
 - 4. PG13
 - 3. PG
 - 2.
 - 1. G
 - STANDARD —
 - USA
 - OTHERS
 - CHANGE PASSWORD
- TRACK SELECTION —
 - OFF
 - AUTO

* Except for Pan American and European models.

continued

Additional Information

Setup Display Item List (continued)

SPEAKER

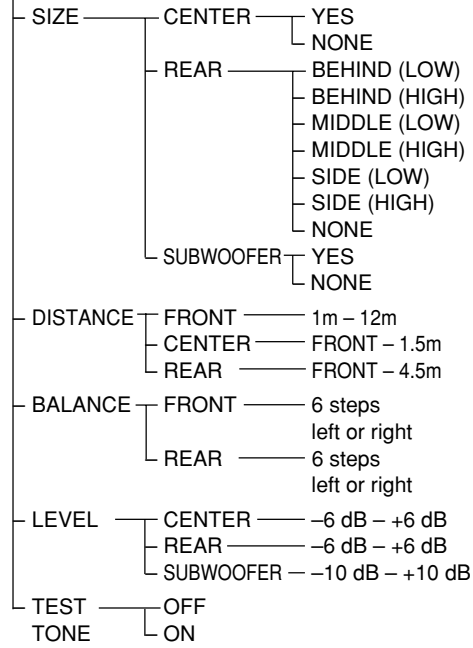


Table for the settings using SUR, EQ, and SET UP buttons

SUR parameters (Press SUR)

Press ← or →	Press ↑ or ↓	Initial setting	Page
EFFECT [XX]	depends on sound field	depends on sound field	50
WALL S/H [X]	S (-8) to H (+8)	midpoint	
REVERB S/L [X]	S (-8) to L (+8)	midpoint	

EQ parameters (Press EQ)

		Press ← or →	Press ↑ or ↓	Page
FRONT BASS	GAIN	BASS [XXX] dB	-8 dB to +8 dB	52
	FREQUENCY	BASS [XXX] kHz	99 Hz to 1.0 kHz	
MID	GAIN	MID [XXX] dB	-8 dB to +8 dB	
	FREQUENCY	MID [XXX] kHz	500 Hz to 5 kHz	
TREBLE	GAIN	TREB [XXX] dB	-8 dB to +8 dB	
	FREQUENCY	TREB [XXX] kHz	1.0 kHz to 10 kHz	

SET UP parameters (Press SET UP)

Press ← or →	Press ← or →	Press ↑ or ↓	Initial setting	Page
SP. LEVEL	FRONT L/R [X]	-6 to +6	center	51
	REAR L/R [X]	-6 to +6	center	
	REAR XX dB	-6 dB to +6 dB	0 dB	
	CENTER XX dB	-6 dB to +6 dB	0 dB	
	SUB W. XX dB	-10 dB to +10 dB	+10 dB	
	LFE XXXXX	MUTING, -20 dB to 0 dB	0 dB	
	D.COMP.	OFF, 0.1 to 0.9, STD, MAX	OFF	
SP. SET UP	CENTER [XXX]	YES, NO	YES	14
	REAR [XXX]	YES, NO	YES	
	R.PL. [XXXXX]	SIDE, MIDDLE, BEHIND	BEHIND	
	R.HGT. [XXXX]	LOW, HIGH	LOW	
	SUB W. [XXX]	YES, NO	NO	
	F.DIST. [XXXXX]	1.0 meter to 12.0 meters	2.4 meters	
	C.DIST. [XXXXX]	FRONT - 1.5 meters	2.4 meters	
R.DIST. [XXXXX]	FRONT - 4.5 meters	1.5 meters		
TEST TONE	T. TONE [XXX]	ON, OFF	OFF	16
DIMMER	DIMMER [XXX]	OFF, 1, 2	OFF	54
RESET MENU	CUR. F. RESET		---	53
	ALL F. RESET		---	
	SP. SET. RESET		---	16

Adjustable parameters for each sound field

The adjusted SUR and EQ parameters are stored in each sound field.
The adjusted SP. LEVEL parameters are applied to all of the sound fields.

	<	SUR	>
	EFFECT LEVEL	WALL TYPE	REVERB
2CH STEREO			
A.F.D.			
NORMAL SURR.			
C.STUDIO A	●		
C.STUDIO B	●		
C.STUDIO C	●		
V.M.DIMENS.			
V.SEMI M.D.			
SMALL HALL	●	●	●
LARGE HALL	●	●	●
OPERA HOUSE	●	●	●
JAZZ CLUB	●	●	●
DISCO/CLUB	●	●	●
CHURCH	●	●	●
LIVE HOUSE	●	●	●
ARENA	●	●	●
STADIUM	●	●	●
GAME	●	●	●

	SP. LEVEL						
	FRONT BALANCE	REAR BALANCE	REAR LEVEL	CENTER LEVEL	SUB WOOFER LEVEL	LFE*	D.COMP.*
2CH STEREO	●				●	●	●
A.F.D.	●	●	●	●	●	●	●
NORMAL SURR.	●	●	●	●	●	●	●
C.STUDIO A	●	●	●	●	●	●	●
C.STUDIO B	●	●	●	●	●	●	●
C.STUDIO C	●	●	●	●	●	●	●
V.M.DIMENS.	●	●	●	●	●	●	●
V.SEMI M.D.	●			●	●	●	●
SMALL HALL	●	●	●	●	●	●	●
LARGE HALL	●	●	●	●	●	●	●
OPERA HOUSE	●	●	●	●	●	●	●
JAZZ CLUB	●	●	●	●	●	●	●
DISCO/CLUB	●	●	●	●	●	●	●
CHURCH	●	●	●	●	●	●	●
LIVE HOUSE	●	●	●	●	●	●	●
ARENA	●	●	●	●	●	●	●
STADIUM	●	●	●	●	●	●	●
GAME	●	●	●	●	●	●	●

* These parameters may not operate depending on the source or may not operate as adjusted. For details, see each item in “Adjusting the level parameters” (page 51).

continued

Additional Information

Adjustable parameters for each sound field (continued)

	EQ					
	FRONT BASS (dB)	FRONT BASS (Hz)	FRONT MID (dB)	FRONT MID (Hz)	FRONT TREB (dB)	FRONT TREB (Hz)
2CH STEREO	●	●	●	●	●	●
A.F.D.	●	●	●	●	●	●
NORMAL SURR.	●	●	●	●	●	●
C.STUDIO A	●	●	●	●	●	●
C.STUDIO B	●	●	●	●	●	●
C.STUDIO C	●	●	●	●	●	●
V.M.DIMENS.	●	●	●	●	●	●
V.SEMI M.D.	●	●	●	●	●	●
SMALL HALL	●	●	●	●	●	●
LARGE HALL	●	●	●	●	●	●
OPERA HOUSE	●	●	●	●	●	●
JAZZ CLUB	●	●	●	●	●	●
DISCO/CLUB	●	●	●	●	●	●
CHURCH	●	●	●	●	●	●
LIVE HOUSE	●	●	●	●	●	●
ARENA	●	●	●	●	●	●
STADIUM	●	●	●	●	●	●
GAME	●	●	●	●	●	●